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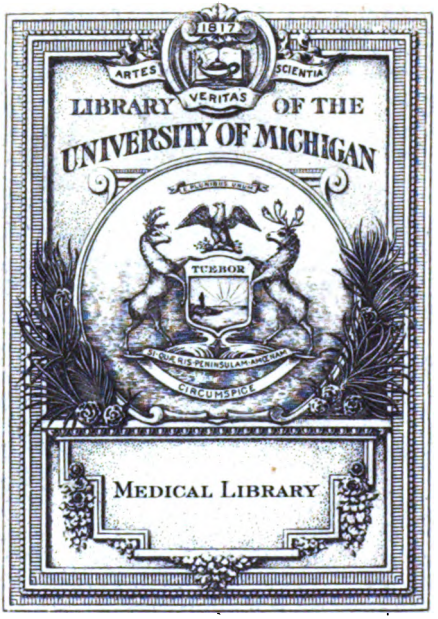

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Newton

THE

TRANSYLVANIA JOURNAL

OF

MEDICINE

AND THE ASSOCIATE SCIENCES.

EDITED BY

LUNSFORD P. YANDELL, M. D.

PROFESSOR OF CHEMISTRY AND PHARMACY IN TRANSYLVANIA UNIVERSITY.

VOL. V.

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PREFACE.

The present number completes the fifth volume of the Transylvania Journal of Medicine and the Associate Sciences. Within the last year, one hundred and fifty names have been added to the list of its subscribers, which may satisfy its friends that it is in no danger of failing for the want of patronage. And one year's experience satisfies the Editor, that he may rely upon his brethren in the West and South for literary contributions.

The interest excited by the appearance of Cholera in several cities of the West, added to the probability that it may again appear during the next warm season, and become, as it has done in many Indian cities, an endemic of the country, has induced the Editor to fill the present number with matter relating chiefly to that disease. The several articles on the subject are from gentlemen who were conversant with the epidemic, andwill be read with deeper interest as the result of personal observation and experience.

The Editor admits reluctantly, that subscriptions to the Journal have not been paid with the punctuality which he anticipated. He hopes he shall not be compelled to make this complaint at the end of another year. Gentlemen in arrears—particularly those who are so from the commencement of the work—are requested to forward the amount of their subscriptions by mail, at the risk of the Editor.

The design of the Journal being to bring to light the vegetable and mineral riches of the Valley of the Mississippi, as well as to diffuse a knowledge of the nature and treatment of its diseases, contributions are still solicited from all who are disposed to aid in improving the Medical Profession, or in developing the character and resources of their country.

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OBITUARY.

Died, recently in South Carolina, of bilious fever, WILLIAM WALLACE POSEY, M. D., in the 23d year of his age. He was beloved as a man, and promised to become an ornament to his profession. He graduated in Transylvania University in the spring of 1832.

—— In Boston, in November last, GASPARD SPURZHEIM, M. D., the distinguished phrenologist.

NOTICE TO CORRESPONDENTS.

Dr. Mitchell's paper on Cholera was received after the matter for the present number of the Journal was in type. For the present, perhaps enough has been published in the Journal on that subject.

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THE

TRANSYLVANIA JOURNAL

OF

MEDICINE

AND THE ASSOCIATE SCIENCES.

FOR JANUARY, FEBRUARY AND MARCH, 1832.

Original Communications.

ARTICLE I.—*Thoughts on Mental Derangement, introductory to a brief Course of Lectures on that form of disease.* By CHARLES CALDWELL M. D. *Professor of the Institutes of Medicine, and Clinical Practice, in Transylvania University.*

TO belong to living and sensitive existence is a valuable privilege. It insures to beings thus favoured a certain amount of gratification, because, in the economy of nature, good predominates greatly over evil, and happiness over misery. But mere life and sensibility must not be classed with the choicest endowments. To be rational and moral far surpasses them, and constitutes the highest prerogative of man. It places him at the head of earthly creation, renders all other beings subordinate to him, and makes them supply his wants, and minister to his pleasures. It also opens to him a Universe, inexhaustible, as a fountain of knowl-

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edge, perfect in wisdom of design and symmetry of arrangement and workmanship, boundless in matter of admiration and delight, and fits him for the investigation and enjoyment of the whole. It puts him in such relation to the entire empire of nature, that every object of it, whose influence bears on him, subserves, in some way, or may be made to subserve his happiness and welfare.

Such, I say, is the condition of man, arising out of his rational and moral nature. But, that that condition may continue unimpaired, and that he may be conscious of the blessings of it, able to appreciate them justly, and fitted to turn them to the proper account, all his mental faculties must be sound. Any affection of them amounting to insanity, especially if it reach his more elevated powers, takes from him his high standing, and all his capacity of true enjoyment, and sinks him as low in the scale of being and felicity, as he was previously exalted. To say, therefore, that intellectual derangement is the most fearful malady that can befal him, is but to utter a sentiment, in which every one must concur. Consisting, as it will be made appear hereafter that it does, in a morbid affection of the master organ of his system, the case cannot be otherwise.

Other diseases are evils; many of them deeply afflictive and grievous. Still, however, they can be borne, with some sort of patience and fortitude, and some glimmerings of hope, because they leave unextinguished a remnant of the choicest boon of Heaven to our race. They do not either render the sufferers entire aliens from themselves, by the extinction of self knowledge, or unfit them for communion with their fellow-men, by effacing the highest attributes of their nature; those faculties, which alone lift them above the brute creation, and place them in the loftier sphere of humanity. True; many other complaints open the grave for the subjects of them, much sooner and more certainly than insanity. But, so much the deeper and bitterer does this circumstance render the miseries of the latter malady. Its most appalling feature is that it extinguishes every thing desirable but life—

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reason, judgment, self-knowledge, hope, joy, affection, social fitness, moral feeling, delight in the beauties of nature and the attractions of art, and all else that sweetens existence; and the absence of which turns it to desolation. In a condition so deplorable, when the prospect of recovery is forever closed, death, the only relief within the scope of expectation, is tediously, I might almost say tormentingly withheld; and the sufferer, bereft of all that belongs to human nature, except the form, lingers on, an object of pity and horror to his race, and of less and worse than nothingness to himself. When poets and painters mean to embody, in a single representation, all that is most dismal and appalling to humanity, they select the insane to sit for their likeness. The following picture, by Shakspeare's Edgar, of the exterior of his own assumed madness, and that of insane mendicants, is proof of this:

"—— —— —— —— and am bethought
"To take the basest and most poorest shape,
"That ever penury, in contempt of man,
"Brought near to beast. My face I'll grime with filth;
"Blanket my loins; elf all my hair in knots;
"And, with presented nakedness, out-face
"The winds, and persecutions of the sky.
"The country gives me proof and precedent
"Of Bedlam beggars, who, with roaring voices,
"Strike in their numbed and mortified bare arms
"Pins, wooden pricks, nails, sprigs of rosemary;
"And, with this horrible aspect, from low farms,
"Poor pelting villages, sheep-cotes, and mills,
"Sometime with lunatic bans, sometime with prayers,
"Enforce their charity."

Such is madness; except that the picture falls short of the original. Nor can any depth or strength of delineation and coloring equal the horror, in which the reality is sometimes clothed. Of all the scenes that can be presented to a sensitive mind, those of a mad-house are the most shocking. Even the carnage of a field of battle is not comparable to them, in the painfulness and durability of the impression it produces. Yet, long as insanity has existed, terrible as it has been in its effects, and anxiously as remedies for it have

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been sought for, often by physicians of the highest distinction and most extensive experience, it has, until lately, been much less understood, and, of course, in an equal degree, less skilfully treated, than any other complaint incidental to mankind. For this deficiency in the knowledge, and failure in the treatment, of a malady so formidable, and of such frequent occurrence, there must necessarily exist a substantial reason. To speak more definitely, such a reason does exist. Nor is it difficult to specify it. Inquiries into the nature and cure of the complaint have been instituted and conducted on wrong principles. My reason again for this assertion must not be concealed; a knowledge of it being material to the investigation in which I am about to engage. Mental derangement has been considered as having nothing in common with other morbid affections. While they have been regarded as belonging to the body, it has been referred to the mind or spirit. Hence we find authors writing, and practitioners talking about "purely mental diseases;" by which they must mean (if any meaning can be attached to such an expression,) maladies of the naked spirit, or immaterial portion of man.

Were it not that this delusion still exists, in the minds of many, it would be difficult to believe that it had ever existed. A representation to that effect might be deemed fabulous. Daily occurrences, however, convince us that it is no fable, but a reality discreditable to medicine, and injurious to man. Nor is it difficult to trace it to its fountain head. It began in Greece, with Plato and Aristotle, and has been perpetuated by schoolmen and churchmen, under the common denomination of metaphysicians. Having first palmed on the world the notion, that man's spirit alone is his intellectual agent, and derives, in its operations, no aid from any portion of his corporeal structure, the sect referred to next inculcated the belief, that, in madness, the spirit alone is diseased, without any necessary connexion between its complaint and an affection of the body. In broader terms, they framed the hypothesis, and gave it currency, that, in man's present state of being, his mind and body are so independent of each

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other, that the former may be diseased, and the latter healthy; and the converse; as if they had no kindred alliances, or indispensable intercommunion with each other, but belonged to separate and distinct existences. Worse still; as if the body were a dungeon to the spirit, confining it, and closing up its avenues of knowledge. Under this mistaken belief the poet sung or said,

"The soul's dark cottage, battered and decayed,
"Lets in new light, through chinks that time has made."

Hence have arisen the errors and inconsistences, practical and theoretical, respecting mental derangement, that have so long and so widely prevailed and produced such an abundance of human misery. Were a sect in physiology to spring up, denying all mutual connexion and dependence between the stomach, heart, lungs, and brain, the notion would not be more visionary and absurd. Nor would it be more directly opposed to rational and successful practice in our profession.

Metaphysics having thus proved, for ages, injurious to medicine, and exercising, as they still do, no little influence over it, invite, on the present occasion, a few further remarks. Mysterious and hypothetical, as they are, themselves, they cannot do less than taint with mystery and hypothesis every thing they touch. For, if it be true, that, as is the tree, so is the fruit, it cannot be less true, that, as are the principles, so is the exposition made by them, in common with every inference and opinion, to which they may give rise. If the former be mystical and visionary, it is impossible for the latter to be clear and substantial. It is a law of nature that every thing produces in its own likeness. Nor is there any point, on which metaphysical dogmas have acted more powerfully and injuriously, in this respect, than on the doctrines of insanity. A large proportion of the incongruities of belief, not to call them absurdities, respecting that complaint, which have so long prevailed, are attributable to them. Has the disease been supposed, at one time, to be the work of demons or evil spirits, that have made their way into the bodies of the insane, and, at another, to be a malign visita-

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tion directly from Heaven? and have exorcisms and charms been resorted to, as means of cure, in the former case, and humiliation, fasting, and prayer, in the latter? In each instance, the error believed in, and the modes of practice adopted, were the superstitious and unavailing issue of the hypothesis, that it was the mind, and not the body, that was diseased. The complaint being considered spiritual, was supposed to be curable only by a spiritual or supernatural process.

But the error thus professedly sanctioned by it, at the time when metaphysics and superstition united their means, to such an extent, in the work of delusion, is not the only mischief, which the hypothesis referred to produced. It threw on the subject, to which it related, an influence compounded of mystery and awe, which not only rendered the investigation of it difficult, but repressed, in a high and pernicious degree, the disposition to investigate. It virtually represented mental derangement as a sort of sacred theme, not to be touched but by consecrated hands, nor ever contemplated, but with sentiments of solemnity and apprehension, highly unfavourable to successful research. The disease was believed to have sprung from supernatural causes, and to have fixed its seat in the immaterial and divine portion of man. Not only was it difficult, therefore, to institute an effective inquiry into it; the very attempt was likely to be deemed sacrilegious. Scholastic dignitaries might take offence, and the theological tribunals of the day feel scandalized, and the incautious investigator might suffer in person, as well as in reputation. Such have been some of the effects of metaphysics, in chilling and checking liberal research, and retarding the acquisition of a correct knowledge of mental derangement. And I regret to add, that the evil is not yet entirely eradicated. In defiance of common sense, and to the humiliation of the profession, some physicians, as already mentioned, still write, and many more speak of "purely mental diseases." But, confident that, in a short time, the former will have no readers, and the latter no listeners, ex-

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cept among the uninformed, and those who mean to ridicule or condemn, I leave them to the indulgence of their fancies and visions, and shall proceed to a different presentation of the subject.

Correct and philosophical views of mental disease can be derived only from similar views of mental health. Physiology and pathology are but kindred stems from a common root. Founded on the same principles, they consist in the same functions, sound in the former case, and unsound in the latter. Such therefore is the only difference between intellectual sanity and insanity. They are but opposite conditions of the same functions, and, to be fully understood, must be examined in the relations, which they bear to each other. Hence, those who would have a just knowledge of madness, must seek it through an acquaintance with a true system of cerebral physiology, which treats of the mental faculties and their functions, in a state of health. In other words, they must acquire it by the study of Phrenology. That science, consisting in the healthful anatomy and physiology of the brain, lays the true foundation of the philosophy and treatment of mental derangement. It divests the complaint of all mysticism and metaphysical subtleties; of every thing supernatural and preternatural, and shows it to be analogous to other diseases; produced by similar bodily affections; governed by similar laws; prevented by similar precautions; and to be removed by similar modes of cure. It proves undeniably, that the only difference between madness and other maladies, arises from the difference between the organs, in which they are seated. Let their seats be interchanged, and the complaints will be transmuted into each other. Transfer subacute peripneumony, for example, (I mean the morbid affection in which that disease consists) to the organ constituting the seat of madness, and it will become madness; and transfer the affection, which gives rise to madness, to the seat of peripneumony, and peripneumony will be the product. In proof of the truth of this, metastases, or mutations and transformations, of the kind referred to, are familiar oc-

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currences. Diseases of the thoracic, as well as those of the abdominal, and other organs, often pass into insanity, and insanity into them. In such cases, the change is in the organ, not in the real nature of the affection. And there is no more of spirituality or mysticism in the one form of complaint, than in the other. They all consist alike in morbid affections of organized matter. The profession of medicine has no concern with any thing but matter. And it is fortunate that it has not; because it possesses no knowledge, philosophical or practical, of spirit, nor any means, by which to influence it. But my subject requires a more detailed exposition, before I can make my views of it sufficiently clear to you.

Phrenology teaches and establishes the following facts; that the brain is as truly the organ of the intellect, as the lungs are of respiration, or the stomach of digestion; that the intellectual faculties and functions, in a sound condition, constitute the physiology of the brain, showing that viscus to be also sound; and, that, of course, the same faculties and functions, in a deranged condition, constitute its external pathology, being the manifestations of a morbid affection of it. Mental derangement, therefore, is to the brain, what dyspepsia, or gastritis under some modification, is to the stomach, or acute or chronic peripneumony to the lungs. It is, as already intimated, the product of an unsound condition of that organ, precisely as the other specified complaints are of a similar condition of the organs to which they severally belong. In each of them the spirit is equally free from complaint.

There exists, with regard to the reality, or what might be called, perhaps not inaptly, the essence of diseases, a very productive source of error, not commonly noticed, and therefore not sufficiently understood and guarded against. It is that of regarding signs as if they were things, and neglecting to give complaints their true location, by referring them to the organs, in which they are situated. Mere externals are looked at, instead of internals, and appearances, instead of realities. In more explicit terms, the symptoms or mani-

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festations are mistaken for the complaints; whereas they are only evidences of their existence, and indications in part of their nature and seat. To illustrate my meaning by example. Peripneumony does not consist in cough, pain in the chest, difficult, restricted, and painful respiration, augmented temperature, frothy and sanguineous expectoration, and a full, tense, and frequent pulse. These are but the external marks of an internal morbid affection, seated in the lungs. And that affection constitutes the complaint. Remove it, and the symptoms vanish, as the shadow does, on the removal of the substance. Am I asked how I know the lungs to be the seat of the disease just specified? I answer, because it is the functions of the lungs which are deranged. Our knowledge of the subject, moreover, is reduced to certainty, by examinations of the bodies of those, who have died of the complaint. Again. Acute pain in the head, a flushed face, red and watery eyes, increased sensibility to light and sound, a throbbing of the temporal and carotid arteries, delirium, morbid wakefulness, and a tense and frequent pulse, with a hot and dry skin, do not constitute phrenitis. They are but its symptoms, or external pathology. The disease consists in a morbid affection of the brain, or its membranes, as is evinced by the deranged condition of the functions of that organ, but more especially by *post mortem* inspection. And were phrenitis transferred to the lungs, it would there become peripneumony; in like manner as peripneumony, if translated to the brain, would be turned to phrenitis. In both cases, therefore, the morbid affection is the same, the difference is in the external manifestations arising from the difference between the organs, where the affection is seated.

To mental derangement similar remarks are applicable. The mere change in the condition of the faculties of the mind, from that of health, does not constitute the real malady. It is but the external evidence of it, the disease lying within, in the form of a morbid condition of the brain. That condition constitutes madness. In proof of this, remove it

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and the complaint is removed. Let it recur, and the complaint recurs along with it. As respects the brain, then, all its diseases, insanity not excepted, are governed by the same laws, with the diseases of the other parts of the body. When that organ is sound, its faculties and functions are healthy. When it is in a morbid condition, so are they. It will, moreover, appear hereafter, that the same external causes which excite other diseases, excite also mental derangement, in those who are predisposed to it. In no respect then does that complaint differ from others, except as relates to the nature of the organ, in which it is seated.

Such is the general view of insanity, which phrenology presents; and it is important that it receive unlimited currency. It is alone calculated to bring that disease within the sphere of human comprehension, and to lead to a successful mode of treating it. It shows it to be something real; that it has an accessible seat, and a positive existence, and is not dependent on any thing immaterial, and therefore destitute of a tangible basis; that it has its root in organized matter, and is the product of deranged structure, or function, or both; and that, it therefore belongs, in all respects, to the same family with other complaints, obeys the same laws, leads to the same issue, and is to be treated on the same principles.

Shall I be told that views of this description were entertained and made known, before the discovery and promulgation of Phrenology? I reply, that, if so, they were faint and obscure, and not fully understood, even by those who broached them. Nor did they lead to any very useful practical result. The history of asylums for the insane proves this, and shows that the practice pursued in them was too often equally repugnant to reason and humanity. Some faint notions of the circulation of the blood were entertained before the time of Harvey. But he first demonstrated their truth, and rendered them subservient to the science of medicine.

Shall I be again told, that many physicians, who are dis-

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believers in Phrenology, speak of madness, as not only seated in the brain, but as being modified in its character, by having its seat in different parts of it, and, in their treatment of it, aim at the restoration of that organ to a sound condition? I acknowledge the fact, but, at the same time, assert, that the physicians alluded to derive their improved views from Phrenology, notwithstanding their professed hostility to it. The very form they give to their thoughts, and the language, in which they express them, confirm the assertion. The benefits of Phrenology are not limited to those who are its advocates. They are extending rapidly, though to most persons imperceptibly, to foes as well as friends; and the whole human family is destined to profit by them. Like that of the sun in his course, the light of Phrenology is falling in common on the "just and the unjust." Every work, of any distinction, on the functions of the brain and nerves, whether healthy or diseased, that has issued from the press, within the last ten or twelve years, is, in substance, more or less, the offspring of that science. Certainly, of every one that has passed under my notice this is true. Yet, as already intimated, to the discredit of several writers, while they have pronounced the science visionary and unfounded, they have adopted its principles; thus practically acknowledging their own disingenuousness. Still, as all such authors have but a partial knowledge of Phrenology, they experience but in part its lights and benefits. Those alone, who are thoroughly versed in it, can avail themselves fully of the advantages it offers. Nor do these advantages relate only to insanity. They extend to every thing, in which a correct knowledge of the human mind is concerned, whether as a means of action, or a source of influence. They are felt, therefore, in all the practical operations of man.

It is phrenologists alone, who can realize, to their full extent, and apply to the various purposes they are calculated to subserve, the important truths, that mental derangement, having no connexion with abstract spirit, is exclusively a disease of the brain; that the brain is a multiplex organ, con-

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taining a number of subordinate ones, each possessing its own specific faculty, and performing its own peculiar function, and susceptible of disease, while the others are healthy, and of health, while they are diseased; that insanity may, and usually does begin, in the form of a morbid affection of one or but a few of the subordinate organs, and is therefore, in its commencement, always local, not merely as respects the whole body, but in relation to the brain itself; that the situation and functions of all the subordinate organs being known, as soon as any of those functions become deranged, the derangement itself indicates the seat and nature of the morbid affection; and that hence the proper treatment of the complaint, especially in an early stage of it, is as obvious and simple, and may be usually rendered as successful, as the treatment of any other serious complaint, seated in an important organ of the system. It is to phrenologists alone, I say, that these facts are fully known; and by them only can they be suitably applied. Nor is this all. Phrenologists also further know, much better than any other class of men, the benefits to be derived from topical remedies, in the commencement of insanity, because they are acquainted with the spots, to which they should be applied. Is the morbid cerebral affection situated in Amativeness, Combativeness, Destructiveness, Cautiousness, Conscientiousness, or Causality? The phrenologist being familiar with the location, can apply his cups, leeches, refrigerants, epispastics, or caustics, directly over the diseased organ. Or, if the complaint be characterized by a want of action, he can pass the electrical spark immediately through the torpid portion of the brain, or employ such other local means, as the case may require. And it will not be denied, that, when thus administered, those remedies are much more likely to prove beneficial, than if they were applied at random, or to a distant point. But the entire amount of light thrown, by Phrenology, on the philosophy and treatment of the disease I am considering, can be made known only by a more extensive and circumstantial

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analysis of the subject. On this therefore I shall enter, without further preface.

There is ground to presume, that the functions and uses of the cerebral and nervous systems are sufficiently known to you. All physiologists are now aware, that two different functions cannot be subserved by the same nerve; but that each sort of nerve performs one kind of action, and no more. And that the same law governs the brain, I trust has been made appear to you, in the lectures on the principles of Phrenology, which have just terminated. It was shown, in the course of them, I hope satisfactorily, that that organ, considered as a unit, cannot perform the multiplied functions, which evidently belong to it; but that it does so, only, by reason of its partition into a number of sub-organs, each one of which, in like mannner with each kind of nerve, performs its own peculiar function, and nothing more; no one of these subdivisions being able to execute the work of another. With these points, I say you are already familiar. It has been also represented to you, that, other things being equal, the strength of any function of the brain is in direct proportion to the size of the sub-organ, by which it is performed. In its relation to mental derangement, this is a principle of peculiar importance. It is also one, of which most physicians know but little, because they have not sufficiently examined it. Hence its correctness is generally doubted, and often denied. It is asserted that many exceptions to it exist. The more thoroughly, therefore, to establish it, confirm your belief in it, and enable you to defend it, should you hear it impugned, a further examination of it appears to be requisite. But it must be brief.

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ART. II.—*Thoughts on Cachexia Africana or Negro Consumption.* By C. H. JORDAN M. D. of Person County North Carolina.

SCROFULA, in every form, and particularly that in which it is most concentrated, scourges the black population of the southern country. That form of scrofula on which I intend offering a few desultory remarks, and which presents an interesting field for professional enquiry has long been obscured, and investigation retarded and almost defied, by the superstitious feelings always connected with the idea of poisoning. The enslaved African is particularly the subject of this malady and hence the terms "Cachexia Africana, Struma Africana, mesenteric consumption and Negro consumption" are used synonymously in this country, to express a scrofulous condition of the mesenteric glands in this unfortunate race.

There are, now, so far as I am acquainted, few dissenters from the opinion that the mesenteric and lymphatic glands are primarily diseased in this complaint, but more frequently it is the former. By actual demonstration these glands are often proved to be almost totally destroyed, when there is comparatively little disease in any of the great organs of the body, and why may not they become the original seat of disease as well as any other organs? Are they not endowed with the same, or similar susceptibilities? Have they not the same channels for the conveyance of morbid impressions that belong to many other glands? The humoral pathologist and the solidist must both answer in the affirmative. It is not my province here to contend whether the original impression is made on the lungs or the stomach, but merely to show that an impression is made by a certain agent, and that this form of malady is the result. I am aware that, in saying this complaint is less hereditary than many suppose, I am occupying debateable ground. Nevertheless I hope to be

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sustained by facts, and facts are stubborn things. I have not denied, nor do I intend denying, that it may sometimes be hereditary, but my object is to show that it may be referred to something more within our reach and under our control than hereditary predisposition.

Within the scope of my observation and practice in this disease, and neither has been of the most limited kind, it has uniformly occurred in families, and hence it has so uniformly received the appellation of an hereditary disease. Notwithstanding it is so uniformly confined to families, and notwithstanding it is so commonly fatal to whole families, it does not deserve an indiscriminate classification with this group of affections; for, although the above circumstances seem upon casual examination, to bring us to this conclusion, we must show that from the manner in which negroes are raised and housed in this country, that the whole family are exposed to the same exciting and predisposing causes from without.

When negroes marry here a house of logs is built for them; these logs are seldom barked, and much more seldom raised from the ground; into these they are put, and although they may have many children, this hut is the common habitation of them all, so long as they live, or at least until they are grown. In such receptacles of discomfort and filth commences this woful malady. If it were hereditary we might reasonably expect to find the disease, or signs of the predisposition in the parent sooner than in the child. A pure fountain cannot send forth muddy water. But again, hereditary complaints not unfrequently pass over the immediate offspring (that is in the form of actual disease) and attack one more remote; this I have not observed in this malady, for although it has no particular point at which to begin, it will, I am certain, destroy that family if they remain within its precincts; for I have known, in many instances, where the causes were equal parents, children, and more distant relatives, all labouring under the disease at the same time.

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and the attacks as promiscuously begun as would have been the case in an epidemic pleurisy or influenza.

Authors are most decided in ascribing to cold the power of exciting or bringing on scrofulous affections; and although, I most heartily concur in the belief that cold and atmospheric changes are powerful exciting causes, I cannot subscribe to the opinion, that they act on, or effect a hereditary predisposition, thereby developing a disease pre-existent to any external predisposing cause. Facts which I cannot disregard go incontestably to prove, that the disease now under consideration, invariably commences in situations friendly to the production of miasma or some pestilential vapour. In other words, it has always begun in ill constructed and badly ventilated houses, about which were accumulations of filth in a state of decomposition. No one at all acquainted with these cabbins can fail to recollect the peculiar, noisome odour with which they are assailed on entering them. In these situations I have always thought negroes imbibed the predisposition to this scrofulous affection. Every one is ready to say that the decomposition of organized matter is productive of much mischief. If then such situations are sufficient for the production of a deleterious agent, and these glands are susceptible of morbid impressions, why refer the scrofulous diathesis to hereditary predisposition, when in fact we have nothing to support the position? I cannot say whether it is essentially the same with that of other febrile miasms, but my opinion is that it is widely different, for we are induced to believe that under different circumstances, and in different proportions of its elementary ingredients, it may be different both in native virulence, and in its effects on the organs of the human body. Thus the decomposition of organized matter will produce a substance, under suitable circumstances which will give rise to intermitting fever; decomposition of the same materials under circumstances the same, so far as we can perceive, will produce bilious fever, under others scarlatina, and under a fourth rheumatism. We might carry it on from the highest grade of yellow fever, to the

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most insignificant intermittent indisposition, and nothing within the range of our perception admonishes us of the commotion that has taken place in the substances out of which miasmata, in their various forms are generated. Yet judging from the effects here produced we must admit the poisonous agents to differ essentially. I do not wish to be understood as intimating that the disease under consideration is ever epidemic; on the contrary, I know it never is, but these circumstances only go to prove that miasmata under different circumstances may predispose to a number of diseases, differing as essentially as the different poisons by which they are produced. I cannot pretend to say what kind of malaria produces the disease in question, nor can I say what kind produced either of the foregoing complaints, (in either case we see a certain effect and know it must have an adequate cause;) neither can we determine which of the various combinations is strongest unless it be from its effects on the organs of the body while under its influence. I can only, in regard to the deleterious agent of which I am speaking, give it as my opinion, that it is of a weaker or more diluted character than any that is concerned in the production of bilious affections. These conclusions are drawn from the facts that persons may remain longer with impunity where it abounds, that is, they may live longer in situations in which the complaint will show itself, if not prevented in the manner hereafter to be pointed out, than they could in situations in which there abounds marsh exhalations without contracting some of the bilious diseases; and secondly its progress is comparatively slow. What effect the confined and impure air of these cabbins may have in the production of this deleterious substance I shall not now stop to inquire, but doubtless all conspire to produce the deadly poison. Predisposition is not I think always inherited, but is acquired by a long residence in these cabbins. A predisposition to any particular disease, by whatever cause induced, is the same in regard to its future developement. The person predisposed is

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not actually sick. He is only fitted for future suffering whenever the requisite excitant is applied.

The books universally concur in the hereditary predisposition to scrofulous complaints, and enumerate various exciting causes, such as cold, moisture, atmospheric vicissitudes, poor living, &c. Dr. Gregory says, scrofula is hardly known in either of the Indies; but when the natives are brought to the European countries, they suffer from it severely. Dr. Good quotes authority to prove that the common debilitating powers of cold, meager and unwholesome food, want of cleanliness and a close and suffocating atmosphere are among the most fruitful sources of scrofulous complaints. Dr. Gregory further says, their prevalence is directly proportioned to the coldness or variableness of the climate. Dr. Eberle seems to think it not always hereditary from the following passage, in which he remarks, "whatever is capable of originating the peculiar diathesis in question will be still more apt to call it into action where it already exists."* He further says, "the causes most frequently and actively engaged in the production of a predisposition to this disease are climactic and atmospheric influence, deficient and unwholesome food; various other diseases," &c. I most cordially concur in the exciting influence of these various causes after the foundation is laid by the poisonous miasm already referred to, if indeed miasm it be (of which I have no doubt;) but for a particular detail on this subject I refer the reader to the learned production of Prof. Caldwell on the subject of febrile miasms, in No. IV, vol. 3, of the Transylvania Journal.

That the climate and atmospheric changes act as exciting causes and even exert an influence on the existing disease is a fact capable of abundant proof. Even those whose abdomens are so tumefied and sore, as to be almost insupportable during the winter, are much relieved on the approach of warm weather, by the removal of internal congestion and a partial transfer of the disease to more superficial organs. Children

* Practice Medicine, p. 454.

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appear to suffer less, and labor longer under the disease, than adults.

Symptoms.—Negroes who are healthy have a peculiar softness and apparent moisture of skin. Those subject to scrofulous taints, have a scurfiness, or branny, or mealy appearance particularly about the eye brows and ears, which is only whitened by washing.

Long before they are willing to admit they are sick a languor and heaviness is observable in all their movements. The cornea has a bluish white colour, frequently tinged with blood, which gradually gives way to a glistening whiteness as the disease progresses, until the eyes appear of a velvet glossiness; the tongue and gums are pale; the former morbidly smooth. Cold distresses them very much and heightens the scurfiness of the skin. Pulse frequently slow and full, but as the disease advances, much arterial excitement is manifested, which again falls into a state of languor, and the patient by all his movements and expressions gives evidence of one borne down by a load of disease. His breathing is disturbed; he frequently contracts and expands the respiratory organs for a long time.

In the progress of the complaint a little exertion hurries the respiration as well as the circulation; the nostrils expand and contract at every effort to respire. He appears as if ready to sink from weight on the lungs.

The abdomen, and particularly in children, now becomes tumid, and imparts to the hand the sensation of a bunch of grapes. Urine generally scanty and red, bowels sometimes constipated, though generally regular until the termination of the disease. Appetite good; cough invariably attends, which is so peculiar that when known it can hardly be forgotten. The most remarkable symptom in the disease is the gradual decline of strength and flesh, apparently without an adequate cause. Perhaps cough, which I have enumerated among the symptoms, is not always present in the commencement of the complaint, but from the intimate association between the mesenteric and lymphatic glands and the lungs, I

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am at a loss to say how the disease can exist long without producing cough. Swelling of the feet and eye lids sometimes attends; pain in the head often.

In the spring of 1826, Stephen, a robust athletic negro man aged 24 or 5, became my patient, who it was supposed had laboured under the disease four or five years. During this period he had occasionally been confined to his bed or house from debility (for he seldom complained of any thing else,) which state of things existed until some five or six months immediately preceding my first interview with him. The history of his case was, that his first attack had every appearance of a well marked case of jaundice, with the exception of a hacking cough, and he wastreated accordingly. Falling under the disease at a time when bilious fever was, or had just been, epidemic in the country, and with such well marked symptoms of hepatic derangement, all subsequent complaints were looked upon as connected with a functional derangement of the liver, for which he was treated. The cough at the time of my first interview with him was of a more distressing character. His health had been so fluctuating that his master had lost all hope of benefiting him by the faculty. Some two or three members of the profession had attended him, and all differed widely as to the nature of his disease, as well as in the treatment. Under these discouraging circumstances his master had determined on trusting the case to nature. From the history of the case and the symptoms then present, I was apprehensive organic lesion had actually taken place in the liver, although ignorant of the true character of the complaint. I gave him a small portion of the pillu. hydrarg., which operated on his bowels a few times, and to his manifest injury. After having waited until he recovered from his prostration, I repeated the dose, but with like injurious effects. I now declined giving any more medicine, except on one occasion, when I gave him a small portion of carb. potassæ. I now learned for the first time, that the water which he drank passed off per rectum, in a few minutes, almost entirely unchanged.

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In two or three days after this time he died. In about twelve hours after death, in the presence of Dr. H. Easley I examined him. Stomach agglutinated to the bowels to such an extent as to require close inspection to make it out. Intestines studded with tubercles, principally in a state of suppuration, and attached to the parietes of the abdomen. So cemented in their various convolutions indeed were they, that the most rigid inspection did not enable us to say where one portion began or another ended; in fine, it was one consolidated mass.

The liver did not exceed my hand in extent of surface or in its greatest diameter. It appeared to have undergone extensive suppuration; the small portion that remained was as easily penetrated with my finger as a mass of dough. The mesenteric glands were completely disorganized, hard and unyielding, resembling that decayed portion of honey comb usually called bee-bread. The organs of the thoracic cavity were only slightly examined, but so far as our examination extended, were comparatively healthy, notwithstanding the mass of putrefaction and death below.

The whole of the organs of the abdomen were literally inundated in scrofulous pus. Whether this man could form any idea of his situation, I am at a loss to say, but during the last several days of his life he frequently said "he was rotten inside."

Edmund, aged 24 or 5, of phlegmatic temperament, was attacked during the ensuing summer, and at my request was put under the management of a medical friend in the neighborhood who was skeptical in regard to the nature of the disease. He was taken, during a long walk from seeing his wife, with severe pain in the side, which disabled him in walking; it was thought to be a slight attack of pleurisy, for which he was bled, purged, and put on a general antiphlogistic course; the pain was removed, but the disease was not eradicated, as was evident from the cough which continued, the increasing debility &c. It was at length concluded that it was a disease of the spleen, and remedies were resorted

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to with a view to bring on healthy action of the organs; but disease continuing to progress, it was at last concluded that it must be a case of poisoning. At the end of about twenty or thirty days the patient died. After ransacking every organ of the body for proof of this opinion, none could be found. The mesenteric glands were tuberculated, and the only organs diseased; though one of the gentlemen informed me, he did not think they were sufficiently diseased to produce death.

Henry, aged 15 or 16, of phlegmatic temperament, died in January 1827. He lived nearly two years from the commencement of the attack. Constant cough attended him, with smooth tongue, and loose bowels. When any of these symptoms were threatening, they were prescribed for until relieved, and the use of medicine was entirely interdicted at any other time. During a very cold spell, at the time above mentioned, all the symptoms became aggravated and he died, complaining much of his head and abdomen. In a few hours after death, without any assistant except my brother the late E. C. Jordan, I made a post mortem examination of the body. The peritoneum was studded with tubercles in various stages; the mesenteric glands were in a caseous state. Brain not examined.

Doctor, aged 23 or 4, of phlegmatic bilious temperament attacked with pain in the side and cough, under which he had laboured several months. Tongue a little rough and morbidly white. Bleeding, emetics, and low diet resorted to. Following this treatment for two or three weeks his cough grew better, his tongue was more natural, and his strength had not declined as fast as many others. He was sent home, a dietic course marked out, under which the family thought he considerably improved, until he imbibed the notion that he was poisoned and prevailed on his master to employ a *root doctor*, who also thought he was poisoned, and by an active course of emesis and the free use of the lancet, soon terminated his life. Not examined after death.

Two small children four or five years old had swelling of

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the lymphatic and mesenteric glands. The submaxillary gland suppurated and discharged freely for several months. During the cold spell in January 1827, one of them died and the other was carried to a celebrated scrofula doctor, some ten or twelve miles off, and is now to all appearances well. This is the only case in which I thought the mesenteric glands diseased that I ever saw recover, and is the only one, out of some fifteen or twenty of the same family, that did recover.

Jenny (the property of Mr. J. Sheppard of this county) aged 12 years, who was thought by the family to be in the incipient stage of dropsy, was put under the following treatment on the 7th March:—directed a cathartic of calomel, rhubarb, and jalap every day.

24th. Medicine had operated well, produced bilious stools of a dark, consistent character; cathartic continued.

28th. Swelling subsided when ever the medicine operated sufficiently. Same course directed.

6th April. Cathartics composed of calomel, aloes and rhubarb.

16th. Learned the evacuations contained fœtid scybala; find her with a humid cough, which the family could not think any more than such a cough as all the children had: medicine continued.

4th May. Found not much alteration; cough somewhat increased, with tumefaction of the abdomen.

8th. Symptoms of mesenteric inflammation increased, purgatives increased in quantity.

12th. Less fever, eyes swollen, purgatives continued as occasion may require.

18th. Much debilitated, stools being free and natural in colour, no medicine taken for several days. Directed tinct. iodine, seven drops thrice a day.

25th. No visible effect from the iodine, only from contact with the tongue &c. complained of some soreness.

About the first of June I visited her and found her extremely feeble, and the family had ceased to give the iodine

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As soon shall you amalgamate oil and water, without an intermedium. The two pursuits stand related to each other as *incompatibles.* They have never been reduced to harmony, and never will. In the course of my life I have seen the experiment to unite them frequently made; and its issue has been always the same. It has uniformly failed, and has often resulted in the ruin of the experimenter. In a medical point of view, the confidence of one party is never gained by it, in times of political strife, and that of the other is in all respects lost. And such ought to be the case. The physician who pursues politics neglects his profession, and becomes incompetent to it, and therefore unworthy of it. Hence, while he is on the hustings, or in the midnight caucus, forgetful of medicine, and retrograding in the knowledge of it, others who have been faithful to it are introduced into the sick-room to minister in their calling. Nor will the result ever be otherwise in an intelligent community. Let the physician therefore, who resolves to enter the political arena, save himself from mortification, by resigning his profession, as his first step, or, in the course of the combat, his brow will be robbed of the honours of it, and his purse of its emoluments. Nor is it less certain that the practitioner who devotes too much of his time to the rites, doctrines, and controversies of the church, wrongs his profession and the *sick*, and injures himself. Let every man labour strenuously in his own vocation, avoiding all interference with that of others, and the world will be incalculably benefited by the arrangement. So true is the classical maxim "non omnes possumus omnia." "I say unto you, therefore, whatsoever you do, do it with all your might;" a precept whose fulfilment requires an exclusive devotion to one pursuit. For the same reason the character of the accomplished physician can never be amalgamated with that of the farmer, the storekeeper, the apothecary, the general trader, or indeed with that of him who is seriously engaged in any other employment. Medicine affords ample scope for the highest powers and the most untiring industry; and he who does not make it an exclusive calling,

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will never honour it, nor be honoured by it, and had better therefore exchange it for something that will bear division. Medicine will not tolerate a rival in the affections of him who weds it.

I have already observed that affectation or singularity of manners* is injurious to a physician. I shall now add, that the easy, courteous, and polished manners of a gentleman are beneficial to him. They procure for him at once respect and attachment. They are even useful in a sick room. Their blandness and amenity, united with tenderness, fall like balm upon the tortured feelings, and like the cooling zephyr on the fevered cheek. When accompanied by dignity and cheerfulness, a graceful deportment and gentlemanly manners have a moral influence actually remediate. This is peculiarly the case in complaints where the spirits of the patients are dejected. They act on them like showers and sunshine on fading herbage, and in each case some degree of revival is produced. He who stands at the head of surgery in Great Britain, and who has accumulated more wealth in his profession, than any other man of the age, or perhaps of any age, owes much of his popularity and success to the attractiveness of his manners. Another surgeon, in the same kingdom, of superior talents, has lost much by manners offensive to those who are strangers to him. The late Professor Rush profited greatly by his polished courtesy. So did Dr. Mead.

Although I have said that a physician should confine himself to the duties of his profession, I do not mean that he should never take part in any thing else. Emergencies may arise to render it incumbent on him to act for a time in other scenes. Warren and Mercer drew their swords and shed their blood in the war of our Independence, Rush was a member of the chief council of the nation, and Ramsay was one of the historians of the time. But these things were done at the peri-

*We are told that oddities and eccentricities sometimes aid in introducing a physician into practice. This may be true; but the peculiarities must be natural, not affected. In the minds of people of discernment and good sense, affectation, in every shape, produces contempt for him who is guilty of it.

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od, that "tried men's souls ;" when every American, who *had* a soul was summoned by duty to put it forth in public life for the good of his country.

Nor is the physician forbidden to aid in the promotion of public improvements. This is especially the case as relates to education. The true principles of that great work he should make it his business to understand, and should be zealous and active in encouraging and maturing the best schemes on which it can be conducted. As it is the only process to improve man and all that concerns him, the physician should act a leading part in its practical advancement. He can do this without neglecting his professional duties. Indeed, to encourage education is one of the collateral duties of medicine. The light thus diffused through the community, by ameliorating the general condition of man, promotes health, and aids every liberal profession. In all institutions and schemes intended for purposes of public charity, it is also the duty of physicians to take part. And they generally do so, to a greater extent than any other class of men, whose means are as limited as theirs. In every country and age the Faculty have been preeminent in works of benevolence.

But the cause which, beyond all others, injures medicine, and takes from the profession its weight and standing, is the want of harmony and concert among its members. Disunion is the bane of every thing. "And there was war in Heaven," is an annunciation to appal the universe. In a state of division and warfare nothing can prosper. Dissolve the mutual support which the heavenly bodies give to each other, and throw them into discord, and creation will become a wreck. *E pluribus unum*, is a motto as essential in defence of professional truth and character, as in defence of confederated states. But it is a motto to which, as a body, physicians are strangers. From acting in concert, through regulated systems, the professions of Law and Divinity have influence in society. But physicians, though equally gifted by nature, in no respect inferior in education, and more numerous than the members of both the other professions united, have no in-

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fluence. The reason is plain. They not only do not act in unison; they oppose and frustrate each others purposes. They cherish towards each other some of the worst feelings of their nature, and pursue, in their deportment, corresponding practices. Many of them would seem to think that they build up their own reputation, by attempting to demolish that of their brethren, and recommend their own practice by censuring that of their rivals. But the mistake is as obvious as it is mischievous. By thus calumniating each other, they lower the standing of the whole profession, and diminish public confidence in it. When one physician is condemning another, his tongue is a poisoned weapon to his own good name, and he is committing a kind of professional suicide. Thus is medicine brought into disrepute by its own votaries; and a war of ridicule is carried on against it, as a science, under the motto, "*Doctors will differ.*"

Do you ask me how this evil is to be remedied? I answer, by union, gentlemanly harmony, and concert in action among the members of the profession. Thus will the strength of all become, in some degree, the strength of each one, and the whole will stand, supporting and supported, a solid fabric, which nothing can shake. The physicians of the United States have it in their power to form the most magnificent and useful institution in medicine the world has witnessed. It may be made to embrace the whole Union, and to confer on the profession and on mankind incalculable benefits. Nor is there any difficulty in the enterprise, provided it be attempted with unanimity, vigour and resolution, and under the lights that may be easily brought to bear on it. It consists in the formation of a Medical Society in each state, under the authority of a law of the state, and composed of all the educated and respectable physicians that reside within its limits. The object of these Societies will be threefold; to throw light on the diseases of each state, under the head of medical statistics, to give to the members a more correct and intimate knowledge of each other, and to regulate the practice by a code of ethics. Let these socie-

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ties be connected by a Diet, or Amphyctyonic Council, composed of a deputation of members from each, to meet as often as may be deemed requisite, and superintend the interests of the whole. Such is the outline of the plan I would propose. Time does not permit me to sketch the details. But it must be seen, at a glance, that they might be made productive of effects in the highest degree beneficial to the profession, honourable to our country, and useful to the world. Under a wise arrangement and a skilful and vigorous execution of them, a blaze of medical light would ultimately issue from them, such as time has never witnessed.* Nor would the moral standing of the profession be less improved. Empiricism, moreover, would as certainly disappear, as all other things of evil omen fly from sunshine. Nothing irregular or dishonourable in the profession could exist under the frown

* This light would arise from various sources, and be diffused in various ways. American medical literature in general, would be greatly promoted by the arrangement proposed. Am I asked, in what way? I answer, that by their frequent meetings, the Societies would render both reading and writing in our profession much more fashionable than they are at present. From certain well known principles, which govern human actions, as well as from the result of all experience, in such cases, this effect could not fail to be produced. American Periodicals in medicine would circulate much more extensively, and be better supplied with original and useful matter. State Societies would elicit many important articles, which would not be otherwise prepared, by appointing members to read papers or deliver addresses, or both, at their annual, semiannual, or quarterly meetings. One part of the duty of the Diet or General Council of the Societies would be, to propose Prize Questions, on suitable subjects; the prizes to be paid in medals or money, out of a fund provided for the purpose. Such a measure would be necessarily productive of many valuable essays. Larger American works in medicine would also be encouraged and multiplied, by the facilities that would be given to their circulation. A Society in each State, composed of physicians anxious to read and inform themselves, would open a market for full and repeated editions of all valuable productions of the kind. Hence, members of the profession, competent to the task, would be induced to write from a twofold motive; the love of money, and the love of fame. And, except under the influence of such inducements, medical literature will never flourish. The annual reports of the corresponding Secretaries of State societies might be made another source of multifarious and important medical information. Nor ought I to pass unnoticed the benefit that would result from the influence which the societies might easily gain over *post mortem* examinations, which are at present but rarely made. Were the proper measures to recommend and insure them pursued, by the whole Faculty of the United States, such examinations might be practised universally. I need scarcely add, that the lights which would issue, and the general advantages that would arise from this improvement, would be incalculable. In fine; by thus federalizing a scheme for the promotion of medicine, in the United States, the medical statistics of our country might be developed to an unprecedented extent, and the profession placed on an eminence it has never before attained.

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of such a confederacy. These are not extravagant declarations issuing from a heated fancy. They are fair inferences from premises which are sound, as might be easily demonstrated, had I leisure to analyze them. Individually, I have no more doubt of the truth of them, than I have, that the sun which shall set tonight will rise again tomorrow. The one event appears to me as clearly and necessarily the result of natural causes, as the other. I shall close this address with a few thoughts connected with the subject of medical ethics.

The temperance, and the entire moral deportment of physicians should be without a stain. In these respects, those who wear the lawn, and minister at the altar ought not to surpass them in purity and correctness. Such, moreover, should be the tone of their feelings, that an imputation of dishonour would be more painful to them than a wound. Under guardians so stern and sensitive, reputation is secure, and public confidence cannot be withheld.

The compensation of physicians for professional services ought to be regulated and uniform; and any deviation from the rule, either by exorbitant demands, or by reduced charges to acquire popularity, ought to be visited by the displeasure and rebuke of the profession; and if persevered in, the delinquents should be proclaimed unworthy of medical fellowship, and otherwise dealt with according to law. They should be neither met in consultation, nor in any other way professionally recognized.

I do not mean, by any sentiment here expressed, that physicians should be rigid in the collection of their fees, or that they should resort for that purpose to compulsory measures. Such a course habitually followed would be unworthy of the liberality of their profession, and would degrade them to the level of common traders. My meaning is, that they should never descend to the dishonourable practice of lowering their fees, with a view to the procurement of favour and business. By the virtuous and manly, underselling is regarded as a species of knavery. Nor is undercharging in

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medicine any better. Let the charge be regular; but payment should never be enforced in cases where it would create distress. A practitioner is at liberty to remit a fee altogether; but not to injure his profession and his brethren, and disgrace himself, by lowering it.

In cases of consultation, physicians should act toward each other with the strictest delicacy and honour. In entering the sick-room the attending physician should lead the way; and, the case being examined, the proposition to retire should be made by the consulting physician, who ought to lead in leaving the room. The result of the consultation should be communicated to the sick or the attendants, by the attending physician, in the presence of his colleague, or otherwise, as the case may require. The prescription agreed on must not be changed, before the next visit, except under circumstances peculiarly imperious. The consulting physician is not at liberty to visit the patient, in the absence of the attending physician, except under a special agreement to that effect. Nothing can be more unpardonable than a violation of this rule. It is treacherous toward the profession, and deeply disgraceful to him who is guilty of it. Sinister motives alone can lead to it; and the physician who is once detected in it, should never be met in consultation again. No discussion of the disease must be held in presence of the patient or his attendants; nor should differences of opinion respecting it be divulged.* Such practices are productive of mischief. In cases of consultation, no physician should ever propose trivial alterations in prescriptions, merely to display his skill and accuracy; I mean his pretended skill. At an early period of my life, I was compelled to meet occasional-

* If the physicians differ, in their views, so widely, that they cannot concur in the practice to be pursued, then their difference should be made known. In that case, a third physician should be called in, or one of those in attendance should retire. If the latter alternative be adopted, the question, *which* shall retire? may be best settled by the patient and his friends. Their preference ought to be definitive; and no offence should be taken at it, by him who is dismissed. Under such circumstances, however, if the issue of the disease be doubtful, it is discreet, in the physician, who remains in attendance, to ask for further consultation, with another practitioner. He owes this, not only to the welfare of the sick, but to his own reputation, and that of the profession.

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ly a practitioner of this frivolous cast of mind. He never fully concurred in any thing; nor suggested any thing actually new. If I proposed to administer a remedy in pump-water, he was sure to prefer water from the river, or the rain-cask; and the reverse. Did I propose rose-water, as a vehicle? His choice fell on that of mint or lavender. Did I wish to give the patient, every hour, five grains of calomel, with half a grain of tartarized antimony? he contended for the third of a grain of the latter article, with three grains and two thirds of the former. Such conduct is pitiful and annoying, and ought to be met with a sneer of contempt. Does a case, on which a consultation is held, terminate fatally? Never let the consulting physician surmise that, had he been called in earlier, recovery would have been the issue. In fine, the consulting physician ought to act as the guardian of the attending physician's reputation; and should he even suspect the commission by him of an error in practice, he is bound to conceal it from every one but himself. Even to him, it is his duty to speak with great delicacy, and to suggest a mistake, rather than affirm one. As soon as the danger of a case, on which a consultation has been held, is past, it is the duty of the consulting physician to discontinue his visits, unless his further attendance is particularly requested. And the proposal to discontinue should come from himself.

Does an accident happen, or a dangerous case of disease occur suddenly in a family attended by a physician, who cannot, at the time, be found; and is another physician called in to visit it? The latter should surrender it to the former immediately on his return. Is a consultation afterwards required in the case? The physician who first visited it ought now to be preferred for that purpose, unless insuperable objections exist. In cases of consultation physicians ought to be punctual as to the period of meeting. To violate engagements of this kind, and consume the time of their colleagues, by keeping them waiting, is highly reprehensible, unless it be the result of necessity. Except in an emergency, where there

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would be danger in delay, the case ought not to be examined or prescribed for by any one member of the consultation, before the others arrive. Strict etiquette forbids him even to enter the sick-room, if there be any other apartment, where he can conveniently wait.

Is a physician himself attacked, and confined some time by a fit of sickness? a twofold duty devolves on his brethren of the profession. They are bound not only to attend him *gratuitously;* but to take charge, in his behalf, and for his emolument, of all the sick he is attending at the time, and of all that may fall sick in his circle of practice, until the period of his recovery and return to business. Nothing can be more unfair than for one member of the profession to attempt to profit by the misfortune of another, when laboring under disease.

On a point similar to this Dr. Mead set a noble example. He and Dr. Friend were at the head of the profession, in London, and rivals in practice. They were also opposed in politics, the latter being a Whig, the former a Tory. Being suspected of some connexion with the Atterbury plot, Dr. Friend was arrested and committed to the tower, where he continued a state prisoner for nearly six months. Dr. Mead, in the mean time, was called into attendance in most of the wealthy families of his rival. But he did not forget that gentleman in his misfortunes. He laboured assiduously to procure his discharge from confinement, which he at length effected, by becoming himself, under a heavy responsibility, one of the sureties for his future good conduct. Nor did his magnanimity terminate here. He was the first to visit Dr. Friend, on his restoration to freedom, and his return to his dwelling. The congratulations of the meeting being over, Mead placed on the table a large purse filled with guineas, saying to his rival, "this, sir, is yours." On Dr. Friend's replying "that cannot be, sir; you owe me nothing," he rejoined "I owe you that purse, and all that is in it. The guinea I paid for it, and every guinea it contains, I received from your patients, during your imprisonment. I insist therefore on your acceptance of it. I must not profit by the misfortune

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of a rival." Actions like this, were they common, would give a lustre to the profession, far beyond that of the most exalted abilities. It is moral grandeur that is truly sublime, and irresistibly commands the applause of the world.

It is contended by some, that physicians hostile to each other, should never meet in consultation. In this sentiment I cannot concur. It seems to me to be equally alien from sound reason and good feeling. Why should they not meet, to unite their experience, judgment, and skill, for the relief of the sick and suffering? Provided they are educated and enlightened, as physicians, and upright and honourable, as men, there is nothing to forbid their meeting, or to prevent the issue of it from being useful. The practitioner of physic, who cannot or will not so far control his private animosities, as to meet and consult honestly with any other competent and fair-minded practitioner, for the preservation of the life, and the restoration of the health, of a neighbour or friend, is unworthy of his profession, and ought to be ejected from it.

For a physician of distinction to consult with an ignoramus, a quack, or a knave, is a different matter. That he should never do, under any circumstances of either friendship or hostility. The reason is plain. In so doing he would be giving countenance to imposture and vice, and no countervailing good would be likely to result from the act. A physician of standing, if requested to meet and consult, in such a case, ought promptly to decline, and frankly to state his objections. He is perfectly justifiable in saying, that he will attend in consultation with any physician of reputation, who may be called in; but that he will not put either his character or his practice, in the power of those, who, from ignorance or dishonesty, are a disgrace to their calling. That he will not render himself responsible for the result of either their knavery or want of knowledge.

But when physicians of high moral character and undoubted skill, become hostile to each other (an event which too often occurs) I repeat, that there exists no cause, why they should not meet and consult. The opposite sentiment

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amounts to a severe censure either on *them*, or on the person, who entertains it. Men often look into themselves, in search of the motives, which govern others. But they do not always find them. I should rather say they rarely find them accurately; few persons being constitutionally alike. To contend that, because physicians are enemies to each other, they cannot and therefore will not meet and consult coolly and faithfully for the benefit of the sick, is to accuse them of several very grievous wants—a want of self-command, of benevolence, of conscientiousness, and of a due regard for their own interest and the honour of their profession. All these urge them to a temporary forgetfulness of their animosity; and christianity commands them to it, under a heavy responsibility. To disobey, then, is to risk much; not to say every thing.

An able physician belongs to the public, and ranks with its most choice and valuable kind of property. He is, moreover, virtually under oath (Hippocrates exacted of his pupils a positive oath) to exert himself, to the utmost, to save life, and restore health, wherever he can. He is not therefore at liberty to withhold his services, when it is in his power to render them. He is bound, by professional ties, which he cannot, under ordinary circumstances dissolve, to make his personal feelings yield to his public duties. And, if his mind be disciplined, as that of every educated man ought to be, he can easily do so. Nothing but seared callosity of heart, or the most inexorable temper, can resist the calls of humanity, on such an occasion.

The following case occurred a few years ago. The wife of a distinguished and wealthy gentleman, residing on Long Island, being dangerously ill, was attended by an eminent physician of New York. Her husband, becoming alarmed, requested a consultation, and named, for the occasion, another physician of equal eminence, between whom and him already in attendance, there existed a misunderstanding. Objections were made to the consultation. The physicians even alleged that they had not confidence in each others in-

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tegrity. "Then," replied the indignant husband, "name a third physician, who *is* an honest man, if you know any such; and he also shall be called in, to serve as a check on each of you, and see that you do your duty." This rebuke rendered them ashamed of their bickering. They met, consulted, prescribed judiciously, and acted fairly, and the lady was saved. Were all physicians, who refuse to co-operate in the preservation of life, "because they dislike each other," thus served, the profession, as well as the community, would be benefited by the measure.

There are yet other courtesies between physicians that should be strictly observed. The professional attendance of one on any member of the family of another should be always gratuitous. But if the physician thus obliged be in circumstances to afford it, he is bound, on the principle of reciprocal courtesy and good feeling, to make such compensation as the case may require. It may be most handsomely done by a competent present. I have known many a monument of liberality and gratitude erected, in such cases, by a piece of plate, or an elegant case of surgical instruments. Has a physician become independent, and retired from business? He ought not to practice gratuitously, even among his neighbours, to the injury of his younger or less opulent brethren. Delicacy forbids one physician to visit, as a friend or acquaintance, the patient of another, except in company with the attending physician, and at his request. Even then his visit should be short. He should make no professional inquiry, and ought to retire, leaving the attending physician in the room. Does a family become dissatisfied with a physician, while attending a patient, and, without his knowledge, call in another? The latter should decline attendance in the case, except in consultation with the former. If one physician hears another censured in his practice or character, it is his duty to defend him, as far as truth will admit; the more especially if he be a competitor in business. To calumniate its members is to calumniate the profession; and to protect that should be the business of all. In fine, the

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Faculty constitute a band of brothers, and can never attain their highest destiny, except as the result of brotherly conduct.

Such are a few of the circumstances and observances, which physicians, whose ambition it is to rise in their profession, and stand well in society, should never neglect. In this our last interview, as a professional body, let me earnestly entreat your serious consideration of them. Let them form some of the rules of your practice and deportment, amidst all the additional lights, which untiring perseverance in study can afford you, and your works will be useful, and your destinies high. Under such a course, your fellow citizens will be benefited, your profession improved, and your country honoured by your lives and labours. In pronouncing this, may my voice be prophetic! and, in future years, when that voice shall be silent, and *hic jacet* shall speak of its possessor, may health and happiness, and the bay of well-earned reputation be yours!

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ART. IV.—*On the Use of Cold Water in Fever.* By JOHN E. COOKE, M. D. &c.

THE treatment of fever is a subject of immense importance to the human race. Millions annually experience from this disease suffering of almost every kind; and even if saved from death, many are saved to experience the destruction of their happiness from the loss of friends, the derangement of their affairs, and the shattered state of body and mind often following the devastations of a febrile disease. The best mode of cutting short this terrible enemy of man, or of evading the force of the storm, has long exercised the ingenuity of physicians; and it will not be questioned that he who shall devise the most effectual and the most agreeable plan of treating fever, will deserve well of his fellow-beings. It is not to be doubted that the plan generally pursued, or rather the principles now acted on in this country, when carried into operation at a sufficiently early stage of the disease, are very effectual in the relief of the sufferings of the patient, and in saving him from a fatal termination of them. Yet, the writer thinks, a powerful remedy has been too much neglected and even undervalued, although it is recommended as much by its pleasant effects as by its efficacy. It is proposed in the following remarks to show that the use of cold water in fever is an effectual, safe and agreeable remedy.

This remedy, for it richly deserves the name, may be used with excellent effect either internally or externally. Its external use was strongly urged upon the attention of physicians many years ago by Dr. Currie of Liverpool, in his Medical Reports. His attention had been turned to the subject by some means, and he has gathered from many quarters, the strongest testimony of its good effects in fever; and made himself extensive trial of its effects with the most happy result.

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In one of his early experiments he had eight cases of fever: on seven he tried the pouring of cold water and they all recovered: in the eighth case, for a reason given, he did not use the remedy and it ended in death.*

A subsequent experiment was a very remarkable one. A regiment quartered near him was attacked in June with the common epidemic fever of England. Dr. Currie was requested to give his aid to the surgeon of the regiment. He found fourteen patients in fever, of whom one was in the twelfth and another in the fourteenth day of the disease. There were a number of bad symptoms in the cases which had been on hand eight days or more; such as petechiæ, pain in the head with stupor, low delirium and bleeding at the nostrils. There were afterwards other cases to the amount of fifty-eight in all. The cold water from the sea at the side of the fort was poured over the naked bodies of these men, and all recovered, except the two who had been sick, one twelve, the other fourteen days; and in neither of these cases was the remedy employed. They were supposed to be too far gone. In twenty-six of these cases the fever was immediately terminated by the remedy. And what is quite as remarkable is, that when the disease was in full progress, in the middle of June, the regiment was mustered and marched down to the sea-side, and made to bathe regularly for some time, with the effect of completely preventing any further attacks. There was not a single case afterwards.†

The same practice was successful in the treatment of cases of fever in the Liverpool Infirmary. In a great number of cases the disease was cut short by the affusion of water on the first and second days; and several instances occurred of the same complete solution of the disease, when the remedy was delayed until the third day, and even the fourth; but this was not common.‡

The following cases show the method of using the remedy and its decisive effects in fever.

* Currie's Med. Reports, Vol. 1, Chap. II. † Ibid. Chap. III.
‡ Ibid. Chap. V.

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A young man, 19 years of age, a pupil in the Infirmary, was attacked with fever. Dr. Currie saw him on the fourth day of his illness. He directed a bucket of cold water to be poured over him. This was at noon. The fever disappeared and a profuse perspiration broke out. "At five in the afternoon he was again seized with feverish rigors, followed by heat, thirst and headache as before. An hour afterwards, the hot stage was established; his heat was 100 degrees, his pulse 100. The same quantity of cold water was again poured over him, and with similar effects. His pulse fell immediately to 80, and became more full; his heat became natural. The following night he took twenty drops of laudanum and slept well." This was on the 17th of the month.

"On the 18th at noon his pulse was 96 and soft, his skin moist, but a little above the natural heat. His tongue was a little furred, and his head ached: he also complained of thirst; the heat at the axilla was 100 degrees. The same remedy was again applied. He was greatly refreshed by it. The pulse fell to 90, the skin became cool, the thirst went off, and all the feverish symptoms vanished."

"On the 19th his pulse was 88, his heat natural, the thirst and headach were gone, and his appetite improving. The affusion was repeated for the last time at six o'clock in the evening."

"On the 20th his pulse was 78 and soft, his tongue clean, and his appetite further improved. He had still some remains of debility on the 21st, but on the 22nd he was free of complaint. This patient during his fever took no medicine but the effervescing mixture, the dose of laudanum excepted. The affusion was used four times."

In another case, a woman 57 years of age "had the usual symptoms, headach, pain in the back and loins, and thirst: her tongue was furred, and her eyes heavy: her pulse 96, her heat 101 degrees. The affusion of cold water was performed at noon. In a few minutes afterwards the heat under the tongue was 98 degrees, the pulse 80." This was on the third day of the disease. Toward evening the fever re-

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turned with rigor and the usual consequences. As soon as the hot stage was established, the water was used, and the fever disappeared. The next day, in the fever, the water was again used twice, at noon, and in the evening; and on the third day the same was done, and the fever returned no more. "This patient used no other remedies but an enema, and after it an opiate every night."

A man, aged 44, about 72 hours after the attack, with pulse beating 100, temperature 104 degrees, had pain in the back and head particularly severe. The water was poured over him, and in ten minutes, his pulse was at 90, temperature at 100 degrees; he was entirely relieved of the pain in the head and back; and was greatly refreshed. In the evening the exacerbation of the fever was severe, and the headach returned with violence. At four in the morning he used the remedy of his own accord, and at nine was in a gentle perspiration, the tongue moist, the pulse 84, the skin cool, and the pains of the head and back entirely gone. In the afternoon there was a slight return of fever, the affusion was repeated, and he had no return of fever.

In another case with the usual symptoms of fever, the cold affusion was first applied on the 7th day, with the usual effect. The affusion was repeated the same day, and on the next, and on the third day the fever was completely removed.

A young lady in the 7th or 8th day of typhus had three or four gallons of cold brine thrown over her at six in the evening, the time of the greatest exacerbation. To assuage the burning sensation of the hands and temples, those parts were frequently sponged with vinegar. The effects of the affusion were as striking as usual in the immediate relief of the symptoms; and on every return of the fever it was repeated, and on the 7th day she was entirely free from the disease.†

Dr. Currie used at first fresh water, afterwards fresh water with vinegar, and lastly a saturated solution of sea-salt in water. Salt water, he says, is more refreshing to the patient, and he thinks safer. "Persons immersed in sea-wa-

† Currie's Med. Reports Vol. 1, Chap. V.

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ter, and especially in saturated brine, for some time together, preserve the lustre of the eye and the ruddiness of the cheek, longer than those in fresh water, of an equal temperature, and such persons exhibit the vital reaction stronger when removed from it."*

Some other cases stated by Dr. Currie are so very remarkable, and the writer from his own experience has such reason to credit them, that he is persuaded a condensed statement of them will be worth the attention of the reader.

Dr. Currie was requested to visit a patient on the 12th or 13th day of his disease. He was sunk down in bed in low delirium, insensible to surrounding objects; and had subsultus tendinum. His pulse was feeble and so frequent as scarcely to be counted; petechiæ covered his body; he was affected with diarrhœa, and passed his urine and stools involuntarily. His respiration was tolerably free; he could take nourishment; and his heat was steadily and considerably greater than natural.

He was too weak to be taken out of bed, and therefore the surface of his body was washed with towels dipped in cold vinegar and water. Anodynes were used to stop the diarrhœa, and procure sleep. Yeast was also directed, a pint daily, with broth and gruel mixed with wine for his food.

The exacerbations were marked by a deep flush extending over his face and neck. On every appearance of this symptom, his mother was directed to repeat the ablution of his body with vinegar and water. This was done eight or ten times in the twenty-four hours, and was always followed by abatement of febrile agitation, and generally by sleep.

In forty-eight hours a dawn of recollection appeared, and the involuntary discharges ceased. In eight days more he was out of all danger.†

A boy of 16, of a healthy habit of body, after a few days of indisposition was seized with a long continued and very violent shivering fit, quickly succeeded by a great increase

* Currie's Med. Reports, Vol. 1, Chap. VI. † Ibid. Vol. 2, Chap. I.

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of temperature. He had intense shooting pains in his head, sickness and oppression at the pit of the stomach, great uneasiness in the loins, extreme prostration of strength, and distressing soreness over the whole body.

On the 7th day from the cold fit abovementioned, his hearing had become very acute; his sight also; he was in a delirium, talking and singing loudly; his pulse was 120, his temperature 108 degrees; his skin parched and dry.

Notwithstanding the high temperature he had complained of the cold air, and the cold water had not been used. In the condition just stated he was taken out of bed, at 8 o'clock in the evening, and a pailful of cold water poured over his body. He was greatly distressed at it, and wept bitterly, but being conveyed to bed, in a few minutes his pulse had fallen to 100, his heat was sensibly diminished, and his mind became calm and clear. He drank a glass of warm wine and water, and in about half an hour fell into a deep sleep in which he continued nearly eight hours.

The next morning, his skin was moist and cool, pulse 96 and firm, thirst gone, pains removed, countenance cheerful, intellect composed and collected.

In the course of the day he became feverish and his body was sponged with cold vinegar and water. He slept soundly and perspired gently that night, and awaked in the morning refreshed and free from fever. He soon perfectly recovered.*

A boy of 11 years of age with the usual symptoms of fever, on the 4th day had cold water poured over him and repeated the same evening. It had the usual decided good effect. He used the cold water twice on the following day; and on the 6th day, while the nurse had stepped out, feeling an increase of temperature, he poured a pitcher of cold water over himself in bed. He was removed to a dry bed, slept soundly that night, and awaked in the morning quite free from fever.

The only medicines prescribed in this case were the saline mixture and small doses of Columbo.†

* Currie's Med. Reports, Vol. 2, Chap. I. † Ibid. Vol 2, Chap. III.

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This case and a number others were furnished by W. P. Dimsdale, M. D. of London, who says in his observations appended to the cases, that "in all, the good effects have been strikingly manifest, and in no instance has the disease terminated fatally after the use of this remedy."

The following is too remarkable an account to withhold from the reader. In the month of May 1800, the Cheshire regiment, in barracks at Gosport, was attacked by the common epidemic of England, which spread rapidly. The sick were treated in the usual way for two months. "During that time thirty of the men were seized with the infection, and in few or no instances was the disease stopped by the emetics or antimonial sudorifics. The fever ran from thirteen to seventeen days, and in some cases to three or four weeks." —"The contagion continued to spread in spite of all our endeavours. At length we had twenty-five in the hospital together, in the different stages of the disease.

"Finding none of the usual means successful in arresting the fever, I had recourse to the affusion of cold water; this was towards the end of July." In the first case in which the remedy was tried, the water was poured on the patient on the second day, with the usual good effects. "In the evening the fever returned; I threw the water again over him with the same happy effect. He had a good night's rest; the next morning he was free of fever, and he was dismissed cured, on the third day from his admission.

"Pleased with this success, I immediately adopted the same practice in nine other cases of fever, from the first to the fifth day of the disease, with equal benefit. In six other cases, from the sixth to the tenth day of the disease, I followed the same practice: in three of these with complete and nearly immediate success, having used affusion only thrice with each."—"In the three other cases sensible relief was obtained, and they all recovered in the end, but the disease ran its course."

Through the months of August and September many new cases of fever occurred. "These were watched narrowly, the cold

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affusion invariably used, and in general on the second day. The effects were similar to those related of the case first mentioned; the success was invariable." In one of these cases the patient was taken to the hospital in the evening of the second day of the fever, "with the usual symptoms, but in the severest form. An emetic was administered, and the affusion deferred till morning. The emetic operated well, but his night was extremely restless, his headach particularly acute, and delirium came on with great violence. It was necessary to employ force to keep him in bed. In the morning of the 21st (the third day of fever) I found his heat had arisen to the uncommon height of 107 degrees, and his pulse was 125. The cold affusion was employed; he screamed from the severity of the shock; but, on returning into bed, he appeared much refreshed, was perfectly sensible, and said that he thought himself well. On examining about ten minutes after the affusion, the heat was found to be 100 degrees, the skin moist, the pulse 110. He slept for nearly four hours in perfect tranquillity. In the evening the fever returned. The affusion was repeated with similar benefit. He slept the greater part of the night. Next morning the fever returned once more. The remedy was once more applied, and the disease was subdued. He was dismissed from the hospital on the 29th."

"From the end of July to the 31st of October, I employed the cold affusion in sixty-four cases. In sixty of these I arrested the disease, having seldom occasion to use the remedy more than twice or thrice, and in no one case more than four times. In the other four cases, (all of which are alluded to in the course of this narrative,) the disease being advanced, was not stopped by the remedy, though the patients ultimately recovered."

This account was communicated to Dr. Currie by James Marshall, Surgeon of the regiment.*

Dr. Currie received a number of statements from surgeons of the English navy who used this remedy in various parts of

* Currie's Med. Reports, Vol. 2, Chap. III.

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the world. Several African surgeons adopted it with success. Mr. Wilson, the surgeon of the Hussar employed it with extraordinary success in the treatment of the yellow fever which appeared on board that frigate in 1795. The sick were landed on their arrival at Halifax in June and placed in tents.—He bled generally in an hour after the accession of the hot stage, then gave a solution of tartar emetic, and administered the cold affusion always in cases of delirium, which it immediately removed, inducing tranquillity and sleep. Of eighty-three cases Mr. Wilson did not lose one.

Mr. Magrath, surgeon of the Amphion, in a letter to Dr. Currie wrote thus: "I have now put this remedy to the test of accurate trial in upwards of an hundred cases of typhus, differently modified by climate and season and diversity of constitution, sometimes complicated with catarrhal symptoms and sometimes with affections of the bowels, not only in the English Channel, but in the Baltic Sea, and in the increased temperature of a southern latitude; and *with invariable success.* When employed in the first stage of fever, it frequently happens, that a single application is sufficient, and I have always observed, that it is more powerfully efficacious, in proportion as it is early resorted to, and that if neglected till the morbid catenation is strongly formed, the fever frequently resists the cold affusion for some time." The same gentleman wrote three years before this to Dr. Trotter on the same subject. He says in that letter, "Indeed, *invariable success has attended my endeavours ever since I began to adopt this practice on a large scale.*"*

The following account of the treatment of the epidemic fever of the West Indies is very remarkable.

The Ganges arrived at Port-Royal, Jamaica, on the 24th November, 1801, in remarkable health. A malignant fever was then prevailing among the shipping: many of the merchantmen were nearly unmanned by it. Soon after her arrival it broke out on board the Ganges and spread rapidly. Mr. Nagle, the surgeon, determined to have recourse to the

* Medicina Naut. Vol. iii, p. 237.

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affusion of cold water. As soon as the morbid heat fairly indicated the accession of fever, he poured a quantity of sea-water on the patient from the head downward; generally two or three bucketfuls. After the patient was put to bed he gave him in general eight or ten grains of calomel and four or five of pulvis antimonialis, and a plenty of diluent drinks. When the water was thus used on the first or even second day it operated like a charm. All the feverish symptoms were removed and the patient fell asleep; and on awaking two or three passages from the calomel served to carry off every remaining irritation. Commonly the fever did not return; but if it did, the bathing was repeated as might be required. There were one hundred and twenty cases from November to July, in all of which the cold affusion was used, and *two only were lost.* One of these had been ill of a violent inflammation of the knee, and was in a reduced state when he was taken ill with the fever; and the other was of a weekly habit and consumptive tendency. In the last of the two the water was not used in the early stage of the disease.*

The same mode of practice was followed with success in the 17th century in Persia, and in the 18th in Abyssinia.†

Cases have frequently occurred in which the patient in delirium runs into the rain or jumps into the sea with the effect of entirely carrying off the fever and delirium. Dr. Currie mentions the case of Capt. S. of Liverpool, who in a delirium jumped out of his cabin window in the Irish Channel and was twenty minutes in the Sea. He was taken up perfectly calm and speedily recovered.‡ He relates also, on the authority of Morandi, physician at Venice, "That some sailors at Constantinople, in the phrenzy of the plague, have thrown themselves into the Sea, and it is said that on being taken out, they have recovered."‡

He quotes also a work of Dr. Cockburn, physician to the fleet about the beginning of the 17th century, in which the author says that such things frequently happen to sailors in

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* Currie's Med. Reports, Vol. 2, Chap. IV. † Ibid. Vol. 2, Chap. V.
‡ Ibid. Vol. 1, Chap. XVII.

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a delirium, and if they are not drowned, "they sweat plentifully and shake off their fever."‖ Other cases of a similar kind are stated.¶ He quotes the following from Monsieur Desgenettes. "An artilleryman, who had two buboes and an anthrax, (charbon) made his escape from the Lazaretto of Boulak, on the day of his being admitted, and in a violent delirium precipitated himself into the Nile. He was taken up about half an hour afterwards, below Embabeth, by the people of that village, and he afterwards perfectly recovered."*

It seems scarcely necessary to say that this remedy ought only to be used when the patient has a hot, dry skin. Partial moisture which does not relieve the patient ought not to prevent the use of the remedy; but a free, general perspiration affords much relief and so reduces the fever, that the remedy is obviously not called for when it exists. Dr. Currie was near destroying a patient by the use of the cold affusion in the cold stage of fever;§ and Dr. Ord was himself very nearly destroyed by the use of the remedy at an improper time, and in another attack was apparently saved by it when used at the proper period, viz. in the hot stage. He intimates plainly that he had seen many men destroyed by the application of cold water in the cold stage of the disease, but speaks in the strongest terms of the use of it in the exacerbation of the fever.†

One thing should not be omitted. Dr. Currie's experience convinced him that the use of this remedy is not forbid by the circumstance of the patient's being in a state of salivation, if that should be the case. In speaking of one of his first experiments, he mentions that he abstained from the use of the cold affusion in a case in which the patient laboured under ptyalism; and adds, "I was not then aware that this last circumstance formed no objection against the cold affusion," &c.‡ Dr. Ord, also, says, that in his own person while in salivation he employed it without injury.† Of the correctness of this the writer is entirely persuaded from repeated ob-

‖ Currie's Med. Reports, Vol. 2, Chap. IV.
¶ Ibid. Vol. 2, Chap. V. * Ibid. Vol. 2, Chap. I.
† Ibid. Vol. 2, Chap. V. ‡ Ibid. Vol. 1, Chap. II.
§ Ibid. Vol. 1, Chap. VII.

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servation of the use of cold water externally, as well as internally, not only without injury, but with manifest advantage.

Some physicians prefer the use of tepid water for the same purpose, and there seems to be an opinion that there is something contradictory in the two modes of practice, and that the statements of those who use the tepid and of those who use the cold water, are inconsistent. This, however is not the case. If water of the temperature of 92 degress or even less, which Dr. Currie calls tepid water,* be thrown over a patient in fever, his temperature must be lowered in two ways: first, by the positive abstraction of heat, inasmuch as the tepid water is many degrees lower in temperature than the patient in fever; secondly, by the evaporation which commences immediately after the water passes from off the body, which is greater after the use of tepid than of cold water. Even if the patient be immersed in the tepid bath, the reduction of his temperature must go on rapidly until it will be reduced too low, if he be continued long enough in the bath; as the writer has often witnessed in boys in the heat of summer, when the water is quite warm.

The truth of this is evident from the consideration that a man, at the temperature of 100 degrees or more, immersed in a bath of 92 degrees must loose heat rapidly. There can be no question that his temperature will very soon descend to 98 degrees, the usual grade in health; and that nothing can prevent the reduction still lower, unless there be some provision of the living body to guard against it. There is a provision of this kind, so that it is a common saying that the living body is capable of sustaining its temperature at 98 degrees in every vicissitude of the temperature of the climate in which we live. This is in a great measure true, but must be qualified. The observations on which the rule is founded are all made on men immersed in atmospheric air. The rule therefore only extends to those who are in this situation. It must not be extended to persons immersed in a different flu-

* Med. Reports, Vol. 1, Chap. IX, X.

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id, as water. There may be something in the nature of the latter fluid, which prevents the rule from holding good; and there is something. Thus, the air we live in conducts heat from the system very slowly; water does the same very rapidly. A man therefore would be disagreeably affected by water at a temperature at which in the air he would feel too warm. The heat of his body by the latter at 92 degrees, would not be carried off as fast as would be pleasant—by the former it would be taken off so rapidly as to sink it in a short time several degrees. Tepid water therefore as well as cold, reduces the temperature of the system and therefore may be used with good effect in fever, though it will not produce so immediate and striking benefit. It may, however, be sometimes used when it might appear hazardous to employ cold water; as when the patient is so low that a fear might arise that the latter would prostrate him irrecoverably.

The internal use of cold water is likewise beneficial in the hot stage of fevers. It cannot be used to such extent as to put an end to a paroxysm so manifestly as the affusion of cold water over the whole external surface; but it is efficient in proportion to the extent to which it can be applied, and is the highest gratification a person in fever can enjoy. It would be easy to cite many instances in which patients who had been forbidden to drink cold water in fever, on having their longing desires gratified have fallen into a profound sleep, and have been greatly benefitted. And why they should not be, would be difficult to tell. Nature dictates to man the use of water as his common drink, and it issues from the earth for his use in all the habitable parts of the globe. The desire for it is particularly great when the body is heated; and children who cannot speak their wants, often show their eagerness for water by stretching towards it with cries, when it is brought near them. The desire for water is as great when the body is in the heat of fever, as when heated in any way, and should by no means be denied unless there be evidence of its bad effects. Of this there is none. All

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ages have used cold water in fever, and it has been rejected by a few only, comparatively speaking.

Hippocrates says, "If any one is sick, he should use for drink vinegar and honey, in winter indeed warm, but in summer cold; and even water and honey, and water if he has much thirst." Galen, in commenting on this, says, "But seeing that fire is warm and dry, and on that account fever also, water, which cools the body and also moistens it, is greatly opposed to the nature of fever. And indeed fevers seem to be instantly extinguished by it when given at the proper time. This indeed has been abundantly declared in the books of the method of cure; but now also the sum of the matter shall be stated. When, therefore, there shall be a fever, with the strength continuing, you will not only not hurt if you give cold water, but you will greatly benefit the patient. The draught of cold water may be as full as the sick man is able to drink without breathing."*

Hippocrates was much† more backward in the use of this remedy than Galen. He objects to its use in pleurisies, preferring vinegar and honey, or honey and water, and now and then a little water. Galen, in commenting on this passage shows that his views were different. After reciting several things which cold water, Hippocrates says, cannot do, and which he conceived were necessary to be done in order to the cure, Galen says, "Nobody ever used cold water to effect these purposes. But nevertheless other physicians, and even Hippocrates, use it: but he less, they more freely. For because they, being led into error, use other drinks with bad effect, they fly back to water, which has no remarkable bad effect, nor indeed active power."—He attributes the bad

*"Quum autem ignis calidus et siccus sit, atque ob id etiam febris, aqua febris naturæ maxime contraria est, quæ corpus tum refrigerat, tum humectat. Et sane ab ea tempestive data febres protinus extingui videntur. Dictum sane abunde in libris methodi medendi; sed et nunc rei summa dicetur. Quum ergo febris fuerit, constantibus viribus, non solum non lædes si frigidam dederis, verum et magnopere proderis. Potio autem frigidæ hujusmodi tanta sit copia, quantum frigidæ aquae æger ipse inspirando haurire possit." *Opera Hippocratis Coi et Galeni*, Tom. XI, Fol. 30, 31.

† "In hoc ergo exhibitionis scopus haud est similis, quod velis *febrem extinguere frigida affatim atque ad laborantis usque satietatem epota.*"

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effects often observed, to the physicians, directing too much wine in the water of the patient—and relates the following anecdote. "When I was every day administering to a certain sick old man wine and water, one of these physicians being present and observing me dropping a very little wine into the water, smiled and said that the sick man did not drink wine, but only saw it; not properly understanding that the proportion of the mixture of wine and water which is given for pleasure, is one; and that which is administered for utility another."* He speaks of the improper use of cold water in the following manner. "But that the drinking of water in the beginning of the accessions, is injurious, (which he (Hippocrates) has declared in these words, *but if a person shall drink it at any time when his feet are cold, it will hurt him much more in all these respects*) is one of those things which are known and conceded by all. When therefore is water proper to be drank? When the sick person will use drink alone, refusing the fluid part of a decoction of barley."†

Hippocrates, though cautious in the use of cold water as a drink in some diseases, as in pleurisies,† in others used it freely. He says indeed that "if any one use cold drink inconsiderately, it brings on spasms and a rigor;"‡ and this we know to be true: but we know equally well that the considerate use will put an end to fever. In this respect it agrees with all powerful remedies, which are injurious in some conditions of the system though beneficial in others. Hippocrates himself says, "In a bilious fever, which returns every day, and is accompanied by bitterness of the mouth and vomiting, and a heaviness in the loins and legs, on that day on which

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* "Quum igitur seni cuidam ægrotanti quotidie vinum aquosum exhiberem, quidam ex hujusmodi medicis præsens, me vini minimum aquæ ipsi instillantem contemplatus, risit, ægrumque vinum non bibere, sed duntaxat cernere dixit; non sane intelligens mixtionis vini, quod gratia voluptatis datur, ad aquam, aliam esse symmetriam, et aliam ejus, quod ad utilitatem ministratur."

† Ibid. Tom. XI, Fol. 103, 104.

‡ This is taken from Hoffman, and no doubt is correctly stated, though from some cause his references do not agree with the copy to which the writer has access. Hoffman, Opera Omnia, Tom. I, Fol. 469.

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the fever holds the patient he should take as much cold water as he will drink."§

In the treatment of typhus fever Hippocrates says, "In the first days let the patient abstain from the bath; anoint him with wine and warm oil in his bed; let him abstain from meats; give him thin and cold draughts."—"But if vehement thirst from the heat press him, when you have administered much drink, make him vomit, and do this two or three times. And when the heat continues, apply old linen dipped in cold water, to the part in which he says he burns most."*

Celsus is very clear in his directions on this subject. He says, "But if an ardent fever parches the patient, no draught of medicine is to be given; but he is to be cooled in the accessions with oil and water, which are to be mixed with the hand until they become white; he is to be kept in that chamber in which he can breathe a free and pure air; neither is he to be stifled with much clothing, but is to be barely covered from view by the lightest. Vine leaves dipped in cold water may likewise be placed upon his stomach. Nor indeed is he to be harrassed with too much thirst. He is to be fed later, that is, after the third day; and is to be well anointed before meat with the same.‖ If an humour has collected in the stomach, he is to be made to vomit when the paroxysm is on the decline; then cold herbs or an apple should be given, something which is agreeable to the stomach. If the stomach continue dry, the fluid part of a decoction of barley, or of wheat, or of rice, with which fresh fat has been boiled, is therefore to be given. But when the disease is at its greatest height, certainly not before the fourth day, when there has previously been a great thirst, cold water is to be supplied copiously, that he may drink even beyond satiety; and when the stomach and præcordia are now full beyond

§ "In febre biliosa, quae hominem quotidie corripit, et os amarum jungitur, et vomitio juncta, et ad lumbos cruraque gravitas, ea die qua febris detinet, quantum quis bibere volet, aquam frigidam sumere oportet." This is also from Hoffman, same work, p. 471.

* Hippocrates, of Internal Affections, Chap. XII, 7th Vol. of the work before quoted.

‖ Viz. Oil and water mixed as before mentioned.

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measure, and sufficiently cooled, he ought to vomit. Some indeed do not require vomiting; but use the cold water itself alone, given to satiety, as a medicine. When either is done, he is to be covered with much clothing, and so disposed that he may sleep. And generally, after long thirst and watchfulness, after complete satiety, after the heat is removed, sound sleep comes on, in which a great sweat is poured out; and that is a most prompt relief; but in those persons, however, in whom besides the heat, there are no pains, no swelling of the præcordia; nothing prohibiting, either in the thorax, or in the lungs, or in the fauces; there has been no ulcer, no looseness, no flux of the belly. But if any one in a fever of this kind coughs slightly, he is not troubled with vehement thirst, nor ought he to drink cold water; but it is to be cured in that manner in which it is directed in other fevers."*

This practice of the Fathers of Medicine was followed in succeeding ages, with little if any serious opposition until the commencement of the 18th century, when Boerhaave opposed the use of cold water in fevers. He says, "The patient ought to drink plentifully of watery, soft, gentle, somewhat acid liquors, rather hot than cold, though he should covet the

* "Si vero ardens febris extorret, nulla medicamenti danda potio est; sed in ipsis accessionibus oleo et aqua refrigerandus est, quæ miscenda manu sunt, donec albescant; eo conchavi tenendus, quo multum et purum aerem trahere possit; neque multis vestimentis strangulandus, sed admodum levibus tantum vel undus est. Possunt etiam super stomachum imponi folia vitis in aqua frigida tincta. Ac ne siti quidem nimia vexandus est. Alendus maturius est, id est, die tertio; et ante cibum iisdem perungendus. Si pituita in stomacho coiit, inclinata jam accessione, vomere cogendus est; tum dandum frigidum olus, aut pomum, ex iis, quæ stomacho conveniunt. Si siccus manet stomachus, protinus vel ptisanæ, vel alicæ, vel oryzae cremor dandus est, cum quo recens adeps cocta sit. Cum vero in summo incremento morbus est, utique non ante quartum diem, magna siti antecedente, frigida aqua coriose praestanda est, ut bibat etiam ultra satietatem: et cum jam venter et praecordia ultra modum repleta, satisque refrigerata sunt, vomere debet. Quid si ne vomitum quidem exierunt: sed ipsa aqua frigida tantum, ad satietatem data, pro medicamento utuntur. Ubi utrumlibet factum est, multa veste oneriendus est, et collocandus, ut dormiat. Fereque post longam sitim et vigiliam, post multam satietatem, post infractum calorem, plenus somnus venit, per quem ingens sudor effunditur: idque praesentissimum auxilium est: sed in iis tamen, in quibus praeter ardorem, nulli dolores, nullus praecordiorum tumor, nihil prohibens, vel in thorace, vel in pulmone, vel in faucibus: non ulcus, non dejectio, non profluvium alvi fuit. Si quis autem in hujusmodi febre leviter tussit, is neque vehementi siti conflictatur, neque bibere aquam frigidam debet; sed eo modo curandus est, quo in ceteris febribus praecipitur."

Celsus de Medicina, Lib. III. Chap. VII, 2.

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contrary, as most times happens."* To this he was led by his theory, as is evident from the whole article, and from Van Swieten's commentary on it. But at this very time the use of cold water as a drink in fevers was so universal and was carried so far along the shores of the Mediterranean Sea, that the practice acquired a special name, *Diæta Aquosa*. In Germany, too, some years later than Boerhaave, Hoffman was very decided in favour of drinking cold water in fever. He has an entire chapter on the subject, of eight folio pages. He attempts to demonstrate its utility from the structure of the body, from the nature of the blood, and from the experience of its good effects. He cites ancient and modern physicians as speaking in its favour.

He says Ramazzini spoke of the snow which fell on the mountains of warm countries, as a singular provision of Divine goodness for the health of the inhabitants.

He quotes Alpinus as saying, "In continual, very burning fevers, all physicians are accustomed to exhibit large draughts of cold water, because it concentrates the native heat, so that the thirst and heat immediately cease; thence the whole body is strengthened, the disease is dissipated by the water drank, and generally the drinking of cold water excites the most profuse sweats, sometimes bilious vomitings take place, and sometimes copious discharges from the bowels, and it excites abundant urine. It is wonderful how such a remedy overcomes these fevers. For these fevers are finished by the excretions which water excites."†

In the treatment of Cholera Aretæus directs "that it should not be suppressed in the beginning, but that the discharge of the vitiated humours should rather be promoted, by taking tepid water frequently in small quantities.

Afterwards if the bowels are in pain and the feet cold, he

* Boerhaave's Practical Aphorisms, 743.

† "In continentibus febribus vehementer aestuosis, medici omnes largum potum algidae aquae exhibere suescunt, quia calorem nativum concentrat, ut statim inde sitis et calor cesset; roboratur inde totum corpus, aqua epota digeritur morbus, et plerumque largissimos sudores frigidae aquae potus suscitat, nonnunquam vomitus biliosi fiunt, et aliquando per alvum copiosi profluunt et urinam copiosam excitat. Mirabile est, quomodo tale praesidium has febres expugnet. Nam excretionibus, quas aqua suscitat, hae febres finiuntur."

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advises that the belly should be irritated by a warm ointment. But if bilious humours are discharged from the bowels, and a vomiting of bile still remains, with nausea, anxiety, loss of strength, he desires that two or three cups of cold water be drank to bind the belly, that the retrograde course of the humours may be prohibited and the burning stomach be cooled."*

Cælius Aurelianus also advises in the Cholera that cold water should be taken at intervals.

Alexander Trallianus prohibits cold applications externally, but writes that "drinking cold water suits better than any thing else, and may be drank a little at a time; if there is very great weakness, a little wine may be added." He says that "cold water is especially useful, if bilious matters are discharged from the stomach and the bowels; if the sick person has vehement thirst and a foul tongue; if the weather is warm, the sick person be a young man, and has used warmer things."†

Hoffman speaks of his own experience thus: "We ourselves firmly testify of the very salutary effect of cold drinks in ardent bilious fevers, as they are called, in bilious synocha, and also in that catarrhal synocha, which in the past year raged here and elsewhere, likewise in the continual and double tertian, from our own long and attentive experience."—"And wonderful indeed it seems, why cold water, or any cold diluent drink, should powerfully promote sweating. But when every thing in the body is burning with internal heat, and the intestine motion of the sulphureous parts is most vehement, cold drink taken in not only moderates the same, but being

* "Praecipit enim, ne in principio supprimatur, sed potius promoveatur humorum vitiosorum exitus, sorbendo aquam tepidam assidue, sed paucam. Dein si torquentur intestina et pedes frigescunt, alvum irritandam esse calido unguento monet. Si autem biliosi humores per inferiora dejecti, biliosus tamen vomitus ad huc adsit, cum fastidio, anxietate, virium lapsu, vult, ut frigidae aquae cyathi duo, aut tres propinentur, ad ventris adstrictionem, quo retrogradus humorum cursus prohibeatur et stomachus ardens refrigeretur."

† "Sed pota aqua frigida maxime omnium convenit, quae paullatim bibatur; si virium summa imbecillitas, parum vini addendum." "Tum utilem esse frigidam, si biliosa per alvum et vomitum egeruntur; si aeger vehementer sitit et linguam scabram habet; si aestas fuerit, aeger juvenis et calidiori victu primum usus."

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warmed by the heat of the interior it relaxes the fibres and subcutaneous canals, so that a very abundant sweat breaks out. But this effect is greater and more certain, if refrigerants, acid and nitrous, are given at the same time with a sufficient quantity of water."‡ "Wherefore we the more reprehend, and think reprehensible, that perverse custom of certain physicians as well as attendants, who, when a raging heat distresses the patient, in fevers, even in the exanthemata, the small pox, the measles, the scarlet fever, and also the synocha, wholly deny cold drink to the sick, and give them nothing but warm tea or coffee, cover them up and overwhelm them, moreover in warm beds. For they do nothing else with these things but increase the anxiety, waste the strength, bring on restlessness," &c.†

Cold water has also been used with excellent effect in dysentery. Hoffman says on this subject; "From which by analogy we may justly conclude that in that nearly allied bilious affection of the intestines, in which with almost intolerable tormina and tenesmus, bilious and bloody matters are very frequently discharged, cold watery drink is not less profitable, even for the same reasons. Of which very salutary effect of cold drink in dysentery, experience moreover very abundantly testifies. Thus Diemerbroeck, Obs. xxix, makes mention of a desperate dysentery cured by cold drink."

He mentions another case from the same author and adds; "We ourselves testify from experience, that diluent drinks,

‡ "Nosmet ipsi de saluberrimo hoc potus frigidi effectu, in febribus sic dictis biliosis ardentibus, in synocha biliosa, nec non catarrhali illa synocha, quae elapso anno hic et alibi grassata, item in tertiana continua et duplici, ex longa et attenta nostra experientia, confirmatius testamur." "Et mirum utique videtur, cur frigida aqua, aut frigidus alius diluens potus, sudorem moveat valide. Sed ubi aestu interno uruntur in corpore cuncta et intestinus partium sulphurearum motus est vehementissimus, frigidus intus susceptus potus eundem non modo attemperat, sed et calore interius tepefactus, fibras et canales subcutaneos laxat, ut sudor erumpat largissimus. Tanto magis vero et certius hic respondet effectus, si sufficienti aquae quantitati indantur simul refrigerantia, acida et nitrosa."

† "Quo magis semper improbavimus et improbandum censemus, illum perversum, tum medicorum quorundam, tum adstantium morem, qui urgente mordaci aestu, in febribus, exanthematicis etiam, variolosa, morbillos, purpuracea, nec non synocha, aegris frigidum potum penitus denegant, ac nisi calidum infusi thee, aut decocti caffee, concedunt, eosque praeterea tricliniis et lectis calidis includunt atque obruunt. His enim nihil aliud efficiunt, quam ut anxietates augeant, vires exsolvant, inquietudines accersant;" &c.

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as whey, milk and water, butter-milk, simple water, or the milder mineral water, (viz. aquam Selteranam, aut Swalbacensem,) have been especially advantageous in the dysenteric disease."*

Hoffman cautions against the use of cold drink when the interior of the body is in a raging heat and the body is bathed in sweat; when the animal œconomy is greatly disturbed by vehement anger; when, with severe spasms and pains of the stomach and bowels in the paroxysm, there is coldness of the extremities, and hard and irregular pulse; when there are signs of internal inflammation; when the patient is very old, and when the strength fails from long continued indisposition; and when in women, especially from a defect of the natural periodic discharges of blood, there is a fear of a cachexy.†

The testimony already adduced is sufficient to show the great advantage to be derived from the use of cold water externally and internally. Many physicians of this country are in the habit of allowing their patients cold water to drink, but the external use is not so common. A physician of Maryland, who was a few years ago Governor of the State, whose name is not now recollected, had experienced such advantage from a rather unusual way of exhibiting cold water in dysentery, that he published in the newspapers an account of his success, recommending its general adoption. He gave large *injections* of cold water.

It would scarcely be proper after so many statements, to withhold the experience of the writer on this subject; as it might be inferred from his silence that the practice recommended was taken up merely from reading. It shall be giv-

* "Ex quibus jam recte per analogiam concludendum; in illo cholerico admodum affini intestinorum affectu, quo cum intolerandis fere torminibus ac tenesmo, biliosa et cruenta dejiciuntur creberrime, non minus proficuum esse frigidum aquosum potum, easdem etiam ob causas. De quo saluberrimo effectu frigidi potus in dysenteria, uberius praeterea testatur experientia. Sic Diemerbroeck, Obs. XXIX, meminit dysenteriae desperatae, potu frigido sanatae." "Nos ipsi testamur experti, diluentes potus, ut lactis serum, lac lymphatum, ebutyratum, aquam simplicem, aut mineralem leniorem, Selteranam scilicet, aut Swalbacensem, in dysenterico morbo profuisse eximie."

† The above extracts are all from the last chapter of the first volume of Hoffman's Works.

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en in few words. In the severe epidemic of 1804, in Virginia, the writer was twice attacked, once violently; the fever was accompanied by delirium. He used cold water freely at the same time that free evacuations were going on from the administration of calomel and tartarized antimony. He administered it in many other cases the same year, and in every year from that time. His patients have never in the autumnal diseases been debarred the use of cold water and even ice, when their heat and thirst led them to desire them. They have used them at pleasure, and frequently he has sent a basket of ice to a patient whom he wished to use it. No evil has arisen from the practice; but on the contrary it has been so obviously useful that many who had great prejudices against the practice, have been led by observation of its safety in the case of others, to use it themselves when attacked; so that even those physicians, who, in the commencement of the discussion which the adoption of the practice is sure to excite in most places, opposed the use of cold water even as a drink, have been compelled to allow it to their patients.

His experience in the external use of cold water is not so great, though it has been considerable. Some years ago a stout boy of about four years of age sleeping in the room, waked him up by his groaning. On examination he was found to have a very high fever: his pulse was strong and the temperature excessively high. He was instantly washed from head to foot with a towel dipped in water, until he became cool. In a few minutes he was fast asleep and had no return of the fever.

A summer or two since, on visiting a sick lady in the country, an infant was observed by the writer, while passing through the room to the patient's, to have a very high fever and to show considerable marks of distress. His temperature was uncommonly high, his face very red, his respiration rapid and accompanied by a noise indicating great uneasiness. His father was advised to take him out of bed, place him on the floor and pour water over his whole body. He did so immediately, and on returning after conversation with

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the patient, he was observed lying at his ease, cool, quiet, and amusing himself.

In the autumnal season of 1826, there were so many sick in the town of Winchester, Virginia, in which the writer then resided, that he would not leave the town. Those in the country who notwithstanding this refusal chose to depend upon him, were treated in the following manner. They were directed to use the cold affusion in the height of the fever and to repeat it at every return of the paroxysm, and to use the common cathartic remedies as usual. The epidemic was very severe; many died in town and country; and yet, of the patients treated in this manner not one died—although one or two of them were accompanied by convulsions.

Finally, it is proper to state, that the writer has never seen any bad effect from the use of cold water externally or internally, during the use of mercurial cathartics. He is entirely satisfied from twenty-eight years experience that it does not in any way endanger the patient; that it does not render him more liable to be salivated; but on the contrary that in salivation it is advantageous to the patient to wash his mouth often, and his jaws externally, and to drink as freely as his inclination arising from heat, leads him to desire it.

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ART. V.—*A Brief Account of the Winter of* 1831-2, *with its Diseases.* By THE EDITOR.

THE winter of 1831–2, is likely to be a memorable one in the history of the Western country. The early commencement of the cold, its unprecedented severity and long duration, together with the extraordinary rise in the Ohio, conspire to render it the most remarkable season that has occurred since the settlement of the country.

The cold weather commenced about the middle of November, and continued with slight intermissions until March. On the 15th of December, after nearly four weeks of intense cold, the mercury in Fahrenheit's Thermometer, at 8 o'clock P. M., stood at four degrees below zero; and at 10 o'clock, on the same evening, at eight below zero. It grew cloudy in the course of the night, and the mercury rose before morning. For about four weeks it did not often rise so high, at any time of the day, as 32 degrees; its *maximum* during the day being from 25 to 30 degrees. On the 25th of January it stood throughout the day at zero; and at day light on the 26th it was 13 degrees below. The intensity of the cold abated in a few days.

In Nashville, it fell two or three times below zero in December, and on the morning of the 16th to fourteen degrees below. A writer in one of the papers of that City remarks, "We had then about twenty-five days of uninterrupted Iceland weather, with snow ten inches deep." The Cumberland was covered with ice ten inches thick, and persons crossed it on horseback. It had not been completely frozen over before in twenty-five years. The early setting in of the cold before the river had risen was favourable to such an occurrence. On the 18th day of January, the mercury in Nashville was as high as 72 degrees. On the 24th it commenced snowing, and the wind blew furiously. At day light on the

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25th the thermometer was at 4 degrees below zero, at 9 o'clock 5 degrees below; and during the day the maximum of its rise was only one above. On the morning of the 26th it was *eighteen degrees* below; on the 27th, 12 degrees below; on the 28th, 2 above; and on the 29th, 30 above zero. In Murfreesborough, 30 miles east, and a few miles south of Nashville, on the 26th, the mercury was *twenty* degrees below zero; and at McMinnville, according to the newspapers, it was *twenty-eight* degrees below zero. The trees from the expansion of sap in their branches on freezing, popped like pistols; and wooden houses cracked so much as to alarm their inhabitants.*

Nashville is in latitude 36 degrees, 10 minutes North, or forty miles nearer the equator than Algiers, and yet such a degree of cold as was experienced there in January, would occasion a strong sensation at St. Petersburg. Why it should be five degrees colder there, and *fifteen* colder in McMinnville, than in this place, which is more than two degrees farther north and in the same valley, and with an exposure not very different, may puzzle the most acute meteorologist. The fact shows that we have yet much to learn of the science of the weather. We place full reliance on the accounts given in the newspapers at the time, for we know that the observations were made by men of science and accuracy. It is very unusual for the mercury to fall, in any part of Tennessee, as low as zero, and until the last winter I am not aware that it has been known, in late years, to sink more than to 6 degrees below.

The thaw which commenced in the Ohio about the last of December occasioned a considerable rise, which, increased by long continued rains, had attained, by the 16th of February, an elevation of 65 feet. A large portion of Cincinnati was inundated; and the banks of the river everywhere were overflowed to a great extent. The damage done by the freshet

* This fact is evidence of the intensity of the cold, and will remove any doubts as to the accuracy of the thermometers used. Nothing of the sort was remarked in this neighbourhood, and yet the mercury was 13 degrees below zero, according to the most perfect instruments.

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to the towns and villages on the river was immense. Hundreds of houses were ruined, and many were swept down the stream. A steam boat in ascending the river, counted fifteen going down in one morning. The boats left the ordinary channel, in places, and sailed through corn-fields, and over apple orchards. Ten houses were seen to move off from Shippingport at once; and thirty were counted in the same eddy a few miles below. It is computed that six thousand persons in Cincinnati were driven from their houses by the flood. The oldest inhabitants say that the river has never been known so high since the country was settled.

In all the month of February we had but four days when the sun shone, and during a good part of the time it was raining.

The past summer was not less remarkable than the winter. In Nashville the mercury once rose, in July, as high as 90 degrees, and for a few days the heat was oppressive; but the temperature was generally much below the mean of our summers. During the months of August and September it rained almost incessantly. It was in the midst of this rainy season that the peculiar appearance of the sun was presented, which attracted notice in every part of our country. In the morning soon after its rise, and just before setting in the evening, it exhibited a singular pea green colour; and during the day when visible it did not possess its usual effulgence, but threw down a pale and sickly ray, which falling upon objects gave them an unnatural hue. The rains in Georgia, in Alabama and the Carolinas did great mischief, causing the streams to overflow their banks and damaging the crops; and in those states there was much sickness. In Tennessee febrile diseases were prevalent in but few places. We had occasion to remark, on our way to this place, that while they prevailed extensively in the hilly and elevated districts of country, few cases existed in those which were level and lower.

The complaints of the winter were *Influenza, Measles and Mumps.* A member of the Medical Class was attacked with measles a few days after his arrival in the city. The disease had

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prevailed in that part of Tennessee from which he came, during the summer and fall, and he left a sister who was attacked with it two days before his departure. Several members of the family in which he lived contracted the disease, and also a number of Medical Students.

About the 20th of December, Influenza made its appearance in the Medical Class and among the citizens. The newspapers had prepared us to expect it, by accounts of its prevalence in the East, particularly in Boston. It reached Louisville and Frankfort a week or ten days before any cases of it appeared here, and if it had been a complaint of doubtful character as to contagiousness, we should have attributed its approach to importation. It prevailed extensively, and in some cases was violent, but the fatality was by no means so great as in Philadelphia and Boston. Measles seemed to march pari passu with it; and between the two diseases nearly the whole of the Medical Class were indisposed, and more than fifty confined to their rooms and beds. There was no instance of mortality among them, as the immediate consequence of these diseases. Mr. Baird, of Tennessee, and Mr. Rogers, of S. Carolina, both died, and with complaints a good deal similar. They both had the appearance of laboring under disease when they came to reside in this place. Their complexion was sallow, and they had experienced disordered digestion, with symptoms of diseased liver. They recovered from the first attack of measles, and resumed their attendance on the lectures; but the exposure brought on fever, with hæmorrhage of the bowels, in the case of Baird, and inflammation of the lungs in that of Rogers, with which they died.

The cases of measles were generally severe. In this disease the remedies prescribed were bleeding, which was required in a majority of cases; calomel as a purgative, and ipecacuan, as an emetic. To subdue arterial action minute doses of ipecacuan were frequently repeated.

In influenza the most effectual and prompt remedy was an emetic, after venesection, where this measure was required.

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Many cases were attended with acute pain in the head or chest, cough and fever, and such were uniformly treated by bleeding, followed by an emetic. The cough rarely failed to be relieved by a few doses of ipecacuan. Calomel was also used.

The number of deaths in the Medical Class of this place has never exceeded two during any winter since the school was established; and generally it has fallen below that number. The winter of 1824–5 is believed to have passed without the occurrence of a single one. And as the Class, for the last nine years, has averaged about two hundred, it will appear that the mortality has fallen short of one per cent, for four months, or three per cent annually; which is a favourable ratio; more especially when it is considered that young men rarely take care of their health—that Medical Students lead sedentary lives, devoting themselves intensely to study, during the winter course of lectures and that they are much exposed to the vicissitudes of the weather, in a climate to which many of them are not naturalized.*

Mumps appeared in the Class during the latter part of the winter. In most instances medicine was not required; but in a few cases where the usual metastasis occurred emetics became necessary to reduce the swelling. A number ofindividuals had all these diseases in succession. Of the three, measles was much the most violent. The stomach in most cases, was

* The following table will show the number of pupils for the last eight years, with the number of deaths each season. The Class generally assembles by the last of October, and nearly one half are necessarily detained until about the last of March, making their stay in the city five months. In all the preceding Classes from the commencement of the school till 1823, but one death is remembered to have occurred, and that was in the one of 1821–2.

Year.	*Number of Pupils.*	*Number of Deaths.*
1823, 4.	200	1
1824, 5.	234	0
1825, 6.	281	1
1826, 7.	190	2
1827, 8.	152	1
1828, 9.	206	1
1829, 30.	199	1
1830, 31.	210	2
1831, 32.	213	2
	1885	11

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extremely irritable, the fever high, and convalescence slow.

The question naturally presents itself, what is to follow such remarkable seasons; and since Cholera is the disease uppermost in the minds of most persons, the inquiry occurs, shall we be visited by it during the next summer? That the overflowing of the Ohio will produce serious sickness in all those regions where the water is not evaporated before the commencement of the hot weater, can hardly be doubted. And that Cholera may be the disease generated, or that like influenza, from which we have just suffered, it may reach us in a peculiar morbid condition of the atmosphere, we confess we think there is some cause to apprehend. If irregularity of season is sufficient to originate the disease there certainly has been enough in our two last winters and summers to make us expect it. In the summer of 1830 the heat was intense and long continued, and the drought excessive. The winter that followed was the coldest that had occurred for a number of years, the thermometer twice falling to zero, in Nashville, and to 15 degrees below, in this place.

This disease, mentioned by Hippocrates, and well known to Sydenham, Huxham and the earlier writers on medicine, first attracted particular attention as an epidemic at Jessore, a large town about twenty leagues from Calcutta, in 1817. It broke out, at the same time, in various and distant parts of Bengal. It was not, however, a stranger, in its most terrific form, in India, for in 1781, soldiers under the command of Col. Pearse, exposed during the night to heavy dews, and great vicissitudes of weather, after long and exhausting marches, dropped down by dozens, with the disease, and expired in less than an hour.*

The appearance of the disease in 1817 was preceded by remarkable seasons—as droughts, heavy rains, with earthquakes, &c. Dr. Jameson in his Bengal report remarks, that "before the epidemic cholera made its appearance, there had been excessive heavy rains, great droughts, storms, and earthquakes. During the rainy season of 1815, the fall of

* Bengal Report p. xvii.

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rain was excessive; the Ganges, the Soane, and Cossee rivers burst their boundaries, producing great destruction. The cold season that followed was damp, unpleasant, and exceedingly foggy. On the other hand, the hot season of 1816 was distinguished for drought and intense heat, which was tempered with but few breezes and little or no rain. On the 15th of April a shock of an earthquake was felt at Calcutta. Towards the end of May, the thermometer had risen to the unusual height of 98 degrees in the shade; and under the effects of this oppressive heat many persons, European and native, fell down dead in the streets. This dreadful sultry weather continued, until interrupted on the 14th of June by the commencement of the rains. During the remainder of June and during July there were moderate rains, and a second shock of an earthquake was felt in the latter month. In August the showers became rare, and the days and nights oppressively hot; in Calcutta and in the western part of the province, the drought that succeeded was so uncommon as to dry up the rivers. On the 8th of September this drought was suddenly succeeded by a deluge of rain which continued throughout the month, and occasioned a deeper and more general inundation than had happened at any period within the recollection of the oldest inhabitants."*

Mr. Bell bears testimony to the fact of the occurrence of the cholera "during or subsequent to weather, either very moist and changeable, or strikingly unseasonable."

As has often been remarked of the epidemics which have ravaged the earth in other times, this was preceded by disorders of a very malignant character among the lower order of animals. "In Hindostan, in 1817, numbers of cattle are said to have died of cholera; numbers of dogs were attacked in the streets of Calcutta in October, 1827, with choleric symptoms, and died. Mr Chalmers says that in the towns of India near the hills, where cholera was so fatal, a disease occurred among the cattle which kept pace with, and often exceeded in mortality that of the human species. Dr. Ran-

*Am. Journal of Med. Vol. IX, p. 457.

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ken states that goats and camels died of it at Rajputana, and Dr Jaehnichen says that in Moscow, during the prevalence of the epidemic, poultry, as chickens, turkeys, &c. were affected. It is said in Prussia that multitudes of fish died during the prevalence of the epidemic."

The last number of the London Journal contains a statement of Dr. Wilkinson, that so far as he has been able to understand it has been uniformly the case, "that in those countries where the cholera has prevailed, it has been preceded by an influenza, similar to that which recently prevailed in England. This fact will disappoint the expectations of those who had hoped that our recent epidemic might be a *substitute* for the great plague of the age. Dr. W. also remarks that he has been informed by highly respectable practitioners, that those who have previously suffered a severe attack of influenza are more apt to be affected by the cholera."

If then this tireless traveller is destined to reach our happy country, the question occurs *in what form will it come?*—as a contagion by importation; or as an epidemic, depending upon malaria or some other atmospherical distemperature? This is still *lis pendens* in Europe, where the profession have abundant opportunities for determining the question. It will not therefore, be considered strange, that the Faculty on this side of the Atlantic, who necessarily depend for information upon the reports of others, should be divided upon the subject. It is a question of the very first moment, the correct decision of which involves an incalculable amount of human happiness or suffering. If it is contagious, and may be imported, then quarantine regulations cannot be too promptly instituted, nor too rigorously enforced, since to this we must look for protection against its ravages. But if, on the other hand, it is an atmospherical disease, and, like the influenza, is pursuing its steady march in the face of every human institution, and over mountains, deserts and oceans, then all *cordons sanitaires* are not only futile, but, since they arrest commerce.

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and cause a stagnation in business, must produce an amount of suffering but little less than the cholera itself.

In their opposition to the doctrine of contagion it is worthy of remark, that the Faculty of America have outstripped their European brethren. While in the latter country yellow fever is still generally regarded as a contagious disease, in the United States the doctrine is almost wholly repudiated. Few points in medicine are now considered better settled here, than that this is a miasmatic complaint, and propagable like all disorders of its class. With such views it is probable then, should cholera turn out to be contagious, that the eyes of our Faculty will not be opened to its true character until it has placed its feet upon our shores, and given occular demonstration of this quality.

The advocates of contagion urge, in support of their opinion, 1st. "*That the disease has generally travelled along roads and the great channels of human intercourse.*"

2nd, That "the relations who have attended on people ill of cholera, as well as the nurses appointed in military corps for that duty, and, in general, those whose employment has led them to be much with the sick, have been observed in very many instances, to be attacked with cholera, during or shortly after their attendance.

"The sick in hospitals, labouring under other diseases, have likewise been observed to be attacked with cholera, especially those who lay near the patients ill with that disease. Sometimes whole families have been swept off successively. Servants have often been observed to sicken after attending their masters."*

3d. *That insulation and residence in mountains have been known to protect from the disease.* In proof of this Dr. Hawkins† thus states: "wherever measures were taken to prevent communication in the Russian dominions, there the disease has been totally checked, or has made but little progress. Petersburgh has not escaped, because a strict quarantine has not been observed between it and Moscow. The Moravian colony on the right bank of the Volga, and several German

* Scott's Madras Report, p. XLIX. † p. 150–3.

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colonies in the government of Saratov, around which the disease was violent, adopted the system of exclusion, and were also unhurt. At Caramala-Gubeewa, some Russian peasants, living together, scarcely a hundred yards from the village, shut up their hamlet on the first report of the disease having appeared in their vicinity, and by enforcing a strict quarantine during the prevalence of the epidemic, remained in health. The large establishment composing the academy of military cadets, at Moscow, was preserved by a similar plan from the scourge which was so active on all sides of it.

"Can we have a better proof of the contagious nature of the disease than that *insulation*, or separation from the sick, is almost universally found to preserve from the evil? Mr. Gomba, the French Consul at Teflis, in Persia, a person who probably was not devoted to any medical theory, writes to Baron Larrey, that the best and most sure mode of escaping from the calamity is *insulation and a residence in the mountains*. Of nine medical practitioners who were living at Teflis at the time of the invasion of the epidemic, four died during the first few days.

"Let us hear the history of Mr. de Lesseps, the Consul of France at Aleppo, an individual who probably has never interfered in medical discussions. When the cholera approached that city in 1822, this gentleman retired, in company with all who wished to be of his party, to a garden at some distance from the city. His asylum was enclosed with walls, and was surrounded by a large fosse: there were only two doors, one for entrance, the other for going out. As long as the malady lasted, he admitted nothing from out of doors without submitting it to the precautions observed in lazarettoes. His colony comprised *two hundred* persons, and consisted not only of Franks more or less acclimatised, but also of several natives. *Not a single individual contracted the disease*; while, at the very same time, within the city, four thousand beings perished in the space of eighteen days.

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"At Dantzic we find that the disease has prevailed for several weeks, *having been probably first imported by sea.* It has not extended from Dantzic to any of the neighbouring towns or districts of Prussia. The Prussian government enforces a very strict quarantine." p. 150–3.

4th. *That it occurred in places the least likely to engender terrestrial miasma.* "The arid sands of Arabia, the rocky ridges of the Caucasus, and the nitrous steppes of Tartary, have not been exempt from the pestilence. Orenburg, where it broke out in 1829, appears from the description of Dr. Sakolov, to be one of those happy spots which would be selected by a physician for its peculiar exemption from all those circumstances which engender miasma."*

5th. *That it prevails amid the intense frosts of Russia.* "It attacked Moscow when the thermometer was 16 degrees below zero, the rivers frozen, and the country covered with snow." This fact would seem to disprove the idea that it is produced solely by the putrefaction of animal or vegetable matter, since this process must necessarily be suspended during the prevalence of so intense a cold.

6th. *That it does not spare thinly populated countries*, where the manners of the inhabitants are refined, the habits cleanly, and the circulation of the air free and wholesome.

7th. *That it travels in the face of winds;* of which there is "a striking example of the advancement of cholera down the Coromandel coast against a strong monsoon."

8th. *That if the propagation of the Cholera was owing to a deleterious principle in the air, its diffusion would be more rapid;* large masses of people would be attacked almost simultaneously, and the population of whole districts of country would suffer indiscriminately. "But the history of the malady proves that it advances, step by step, slowly. It took a year to traverse the peninsula of India; three to pass the Persian Gulf; three to reach the Mediterranean and Caspian Seas."*

9th. *That its mode of spreading is analogous to that of conta-*

* Boston Med. & Surg. Journal. Vol V, p. 406.
* Am. Jour. Med. Vol. IX, p. 481.

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gious diseases, as illustrated by Dr. Gregory in his observations recently made on the subject, "appearing first on the frontier next to an infected district, or, if on an island, always first showing itself in a sea port—in short, never being met with, except where communication had been held with places in which it already prevailed; and as forcibly exhibited by the course of the disease in Russia:—"the manner in which it travelled *up* the Wolga to the North, and then crossing over to the Don near its source, pursuing a course diametrically opposite, namely; *down* that river to the South; thus travelling in two nearly parallel lines in contrary directions—a phenomenon perfectly intelligible if the plain straight forward doctrine of its being carried by man were admitted, but wholly incomprehensible on any other."

10th. *That "the jail in every large town is either not visited at all, or not until almost every other place has been decimated by it."*

11th. *That the small pox and measles, diseases confessedly contagious, have, like Cholera, their periods of increase, maturity, and decline.* Sydenham who saw the plague of 1665, and who lived before inoculation was practised, describes smallpox "as at one time rarely appearing, or not at all; then beginning to show itself at the approach of the vernal equinox, spreading more and more every day, becoming epidemic about autumn, abating on the coming of winter, and returning again in the spring. The measles of 1670, says the same physician, began very early, that is, at the beginning of January, and, increasing daily, came to their height at March; afterwards they gradually decreased, and were extinguished in the following July.

Not only is there a similarity in the general course of cholera and that of the known contagious diseases, as smallpox and plague, but there is a most striking parallelism extending even into their details. There is the same capriciousness exhibited in the selection of their victims; they spread in one part of a town and not in another—commit the greatest ravages in one village, and neglect, or slightly visit, its im-

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mediate neighbor." "At some periods the smallpox and plague carry off hundreds; at others, children, whom we inoculated," says Dr. Odier, talking of smallpox, "have gone out every day, even after the eruption had broken out; they have been in the streets and public walks; they have communicated freely with other children susceptible of the infection, and not only the smallpox did not spread, but there did not occur, to my knowledge, any distinct instance of communication of the disease from one individual to another in the streets or promenades."*

12th. *That nearly all the physicians of Great Britain believe it is contagious.* "Those who had been firm, zealous advocates for the non-contagiousness of the disease, have, on nearer examination of its progress, been convinced of its contagious character. Dr. Russell, *e. g.* went to Russia a con-contagionist, but has been satisfied that he was in error; Dr. Lowrie, who had seen the disease in India without suspecting it contagious, is convinced that it is so at present. Mr. Orton, author of a work on cholera, and a staunch non-contagionist, now comes forward and says that the arguments against contagion are "as dust in the balance"—such are his words—when placed against those that are now opposed to them. Dr. Johnson, of the Medico-Chirurgical, is now quite satisfied that the disease is contagious *under certain circumstances*, i. e. when a predisposition to it exists in the person exposed,—and what more can be said of the smallpox itself."†

"In addition to the persons before mentioned, we find its contagiousness expressly affirmed by the most distinguished of those who have been eye witnesses of its ravages; among these we would mention Drs. Scott and Stuart, the principal members of the Medical Board at Bombay—the Physicians of two divisions of the army at Bengal—the Medical Board of Calcutta—Dr. Kennedy, author of a valuable treatise on the cholera—the Bombay Report—the Medical Board of Russia—the Central Sanatary Commission in France, and

* Boston Med. & Surg. Journal. Vol V, p. 409. † Id. Vol. VI. p. 16.

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the Superior Council—the Persian and Turkish governments —the four Austrian physicians who were sent to Russia to observe the disease—Dr. Walker as well as Drs. Barry and Russell—Drs. Makartienne, Martinengo, Meunier, Angelin, and Salinas, who have witnessed the cholera in different countries—Sir William Crichton and Dr. Eoder, physicians to Nicholas—the late Russian General Diebitsch, and the Polish commander Skryznecki. Besides these, we may mention the Emperor Nicholas; the British Ambassador at the court of St. Petersburgh; and the French consuls Lesseps, Guys, Reynaud and Gamba."*

Finally, that it is safest to believe that it is contagious. "We have stated our conviction, that this dreadful mortality has been occasioned by a poison imbibed by the healthy and generated by the sick, that it has not been caused by some pernicious change in the atmosphere. Of the two hypotheses, if both were countenanced by an equal number of facts, still that of contagion should be preferred, not only on grounds of prudence, but on the score of humanity. What harm can come of taking up the contagious theory?—but if it were to be generally believed, in right earnest, that the ravages of the malady depend on the presence of a poisonous wind, whom could we expect to encounter the withering blasts of this worse than Simoom or Harmattan? There would be no safety nor refuge, and all the motives which lead us to discharge the sacred duties of humanity, would languish and expire. Let us adhere to the safer, as well as more consolatory doctrine, until it is *proved to be false.* Let those who are enabled take the advice of Franklin, and leave an infected spot "as soon as they can, go as far as they can, and stay away as long as they can."†

Such are the arguments which are urged in favor of the contagiousness of cholera; and many of them assuredly possess much weight. Some of the facts are hard to explain upon any other supposition; but most of them have been answered, and we think satisfactorily.

1. It is contended that it is *not* always along roads and the

* Boston Med. & Surg. Journal. Vol. VI, p. 16. † Id. p. 411.

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great thoroughfares of commerce and travel, that it moves from place to place. In his report on the subject, Surgeon Mitchell remarks, "as far as I can learn, the cholera appears to have made its approaches by neither of the great roads. Commencing its ravages here to the eastward, a little north of the fort, it spread pretty generally through the small, low, dirty houses in every direction. The hospital seems to have escaped, probably because the building stood upon high and open ground."

2. It has appeared in places where no facts existed to show that it had been brought from abroad. A single fact of this description must be deemed an *experimentum crucis* as to the question, whether it ever originates independently of contagion. But it cannot be denied that some diseases thus arising become afterwards contagious.

"After a careful investigation of the supposed introduction of the disease into Orenburg, by the caravans which arrive from Central Asia about midsummer, it was found impossible to attach any plausibility to that notion. The last caravan that arrived at Orenburg, reached that place on the 22d of July, thirty-five days before the first case of cholera occurred there; the individuals composing it were all in good health, and in crossing the steppes, which is accomplished in from thirty-three to ninety days, they lost only one companion, whose disease could not be ascertained, but who died after being twenty days ill, and therefore it could not be of cholera. Now it is entirely admitted by the contagionists, that the period at which the disease occurs after exposure rarely exceeds three days, and that at most it does not exceed a week. It is consequently entirely clear that the disease could not have been introduced by the persons belonging to the caravan. It is scarcely less certain that it could not have been introduced by the goods conveyed by them; since at every resting place it is the practice of the merchants to unpack their merchandise, so that they must have been freely exposed to the fomites had there been any; yet none of them were taken ill. Besides, the Bucharian merchants

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and their attendants, laughing at the suspicions of the physicians, exposed themselves in every possible way to the exhalations from their packages. Neither could it be discovered that any person in Orenburg was attacked by the cholera, who had purchased goods of a suspected nature brought by the caravan. When to these facts it is added that the cholera did not appear at Orsk or Troitsk, two other frontier towns, where the easterns caravans also arrive during summer, it is evident that importation in this manner is out of the question.*

The attempt to prove that it was imported into Riga has not been more successful. And that it was not introduced into Dantzic from Riga, Dr. *Dalmas*, a member of the Medical Commission sent by the French Government to Warsaw, believes for the following reasons:

"1st. That the Cholera did not exist at Riga at the period of the sailing of the vessels accused of conveying the disease. 2d. That the cholera did not appear on board any of them during the voyage. 3d. That the cholera appeared at Dantzic before their arrival, and that it broke out in the town before it appeared in the port; and lastly, the cordon sanitaire did not protect the neighbouring places."

"Another fact still more disproving all idea of contagion from the goods imported from Russia is, that not one of the labourers employed in discharging one hundred and ten ships, which subsequently arrived, were affected.

"Finally, it is false that the cordon prevented the propagation of the disease to the environs; for it appeared many days before the cordon was removed, at Esling, Marienburg, Stutgard, and at Derschaw."

"In Moscow, where the police is remarkable for their activity, Dr. Jaehnichen informs us that the most minute and exact researches most incontestibly prove that the disease was not imported into that city, but that it developed itself spontaneously. Dr. Walker, a believer in the contagious nature of the disease, confirms this. He states that, "a strict

*Am. Jour. Vol. 9, p. 463.

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investigation had been made into what were considered the first four cases occurring in Moscow, and that it proved that they had neither themselves been in any infected place, nor had communication with any one coming from such place."

It has been equally impossible to trace its introduction into Sunderland. Mr. Penman, the Surgeon to the Sunderland Infirmary, in his letter to the American consul, states, "we have no evidence of its being imported, and the prevailing opinion is, that it is not infectious."*

3. Troops have out-travelled the disease, and left it behind them, as is well made out in the following extract from Mr. Bell's Journal, p. 60, 91.

"In July, 1719, I marched," says Mr. Bell, "from Madras, in medical charge of a large party of young officers who had just arrived in India, and who were on their way to join regiments in the interior of the country. There was also a detachment of sepoys, and the usual numerous attendants and camp followers of such a party in India. The cholera prevailed at Madras when we left it. Until the fifth day's march, (fifty miles from Madras, no case of the disease occurred. On that day several of the party were attacked on the line of march, and during the next three stages we continued to have additional cases. Cholera prevailed in the country through which we were passing. In consultation with the commanding officer of the detachment, it was determined that we should endeavour to leave the disease behind us; and as we were informed that the country beyond the Ghauts was free of it, we marched without a halt until we reached the high table land of Mysore. The consequence was, that we left the disease at Vellore, eighty-seven miles from Madras, and we had none of it until we had marched seventy miles farther, (seven stages) when we again found it at one of our appointed places of encampment. But our camp was, in consequence pushed on a few miles, and only one case, a fatal one, occurred in the detachment. The man was attacked on the line of march. We again left the disease,

*Am. Jour. Vol. IX, pp. 467, 468.

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and were free from it during the next hundred and fifteen miles of travelling. We then had it during the three stages and found many villages deserted. We once more left it, and reached our journey's end, two hundred and sixty miles farther, without again meeting it. Thus, in a journey of five hundred and sixty miles, this detachment was exposed to, and left the disease behind, three different times, and on none of those occasions did a single case occur beyond the tainted spot."

4. Medical men in constant intercourse with the sick do not suffer more than those whose calling does not impose upon upon them this necessity. Of between two and three hundred medical men, engaged in practice in Bengal, but three took the disease.* While, "at Negpore the Medical Staff remained for several days, night and day, in the hospital, and yet all escaped."† The same immunity was enjoyed by the attendants of the hospital at Bombay, at Madras, at Berthampore and elsewhere, when the disease was raging with the utmost violence. "It was observed," remarks Mr. Farrel,‡ "that the attendants on the sick, or persons resident in the same house, or even in the same ward of an hospital, with patients labouring under it, were not more liable to its attacks than others differently circumstanced. Indeed, it has been known to attack patients who had been admitted into hospitals for other complaints, to have carried them off with its usual rapidity, and not to appear again in the same hospital, although it raged in all directions around it. These are strong facts, and if they do not disprove its contagious nature, they show, at all events, that it is propagated in a manner different from all known contagious diseases." In his report to the Prussian government, Dr. Albers makes the following very forcible statement:—"In Moscow, in many houses, it happened that one individual attacked by cholera was attended indiscriminately by all the relatives, and yet the disease did not spread to any of the inmates. It was finally found, that not only the nurses continued free from the dis-

*Bengal Report. †Id. ‡Hawkins, p. 263.

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temper, but also that they promiscuously attended the sick chamber, and visited their friends without in the least communicating the disease. There are even cases fully authenticated, that nurses, to quiet timid females labouring under cholera, have shared their beds during the nights, and that they, notwithstanding, have escaped uninjured, in the same manner as physicians in hospitals have, without any bad consequence, made use of the warm water used a moment before by cholera patients for bathing."

The British consul at Riga states, that of the seventy-eight persons employed in the principal hospital of that place, only two were attacked with the disease; while only one of the one hundred persons attached to the hospitals in Warsaw, had died on the 11th of last October, according to M. Chamberet.* Strong testimony to the same point is borne by Mr. Scott. "The most striking instances of immunity from the disease, under the most intimate personal intercourse, will be found recorded in the original reports. In the hospital of the royal regiment, only one individual out of one hundred and one attendants was attacked with the disease. In that of the 11th native regiment at Vizianagram, as recited by Mr. M'Andrew, p. 33, not one was seized, although their numbers would seem to have been great. In the hospitals at Trichinopoly no attendants were taken ill. Many medical officers appear to have slept in their hospitals without suffering any bad consequences. At St. Thomas' Mount, where a general receiving hospital for patients with the cholera was established, and where the numerous attendants were people not at all accustomed to hospitals, not one of them was taken ill; yet it was not uncommon to see them using the bed-clothes of patients who had recovered or died. The same observation applies to the numerous receiving hospitals at Madras. Mr. Acting-surgeon Gibson, on reporting on a late attack, (April, 1823,) experienced by the 69th regiment at Wallahjahbad, observes, I had ninety-two admissions, and increased the establishment of servants to double:

* Gazette Medicale. ‡ Madras Report, p. 1.

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I lived in the hospital amidst the sick day and night; and yet neither I myself nor any one of the servants got the disease; but the hospital serjeant's wife, living in a retired room, not near any disease, had a severe attack."*

5. There is no proof that the disease was ever transmitted from one person to another by immediate communication. "Dr. Walker himself, a contagionist, acknowledges that he could not learn, that the contagionists in Moscow had any strong particular instances to prove the communication of the disease from one individual to another.† At Jarsolan the disease could not be traced from one to another, and very often, perhaps most frequently, only one in a family was attacked with it.‡

At Riga, "the illness of one individual in a family generally, was not followed by that of others, except where the first case was fatal, and the survivors gave way to grief and alarm and mental agitation, which has been proved to be one of the principal agents in propagating or exciting the disease. Mercenary attendants were rarely attacked.

In the cholera which prevailed in the 14th and 47th British regiments, at Berhampore, the soldiers, native servants, and inhabitants of the bazar, were affected, whilst the officers, the gentlemen residents, and sepoys assembled in the same cantonment, and promiscuously mixed together, were exempt."‖

6. *Entire insulation has not always been effectual*, as was proved at Riga and at Moscow; while in a town on the Coromandel coast the disease *first appeared among the convicts confined in the fort*, not extending to the town until about ten days afterwards.

7. *Cordons sanitaires have proved ineffectual in warding off the disease.* "The Russian sanitary cordons have not preserved either Moscow or St. Petersburgh; the sanitary laws of Prussia which were executed with a punctuality and rigour elsewhere unknown, have not preserved Berlin, whilst Thorn, in

*Madras Report, p. 1. † Am. Journal, quoting Hawkins. ‡ Id. ‖ Id.

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constant intercourse with Warsaw and Dantzick, enjoys an immunity from the pestilence."

"Three months scarcely elapsed from the appearance of the pestilence in Poland, before it had passed the triple cordons sanitaires of Austria and Prussia, pervaded the whole of the grand duchy of Posen, ravaged eastern Prussia, penetrated into Silesia, and destroyed thousands of victims in Galicia. The pestilence advanced towards Berlin:" "Its progress," says M. de Boismont, "is disputed foot by foot, with all the energy of despair, a last cordon is created on the Oder, composed of the elite of the Prussian troops, the guards; nevertheless, the cholera entered the capital early in September. Those who know Prussia, will not doubt that the orders of the government were rigorously enforced. The same measures were taken to protect Vienna, and with the same results."

"Austria and Prussia, like Russia, have withdrawn all their cordons, and acknowledge not only their inutility, but that they are productive of immense evils."

8. "*The disease has occurred in ships at sea*, and has attacked officers in their boats on the Ganges, far from any source of contagion. On the 28th of July, 1822, it broke out in the H. C. ship Sir David Scott, lying at the new anchorage off Saugor Island, Bengal, where she had already been two months, and was preparing to proceed on her voyage to China, her crew in perfect health. On the day just mentioned a poor old man was seized with cholera and died. The next day a fatal case occurred in a fine young man; third day there was another fatal case; fourth day ten new cases occurred; of which two were fatal; fifth day there were thirteen new cases, (all young, strong, and previously healthy men,) and five of them were fatal; sixth day eight new cases, one fatal; seventh day four persons were attacked, of whom two died; the next two days there were no cases, but after this many mild cases occurred, none of which proved fatal."

"In searching for a cause of this visitation of cholera," says Mr. Grant, "there is nothing to be found in the state of

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the atmosphere, as indicated by the thermometer or barometer, that will assist us; for there was no kind of change from what had previously existed: the heat was not greater than usual; thermometer from 78 to 86 degrees F. The ship had been in its place of anchorage for two months, and during that time the crew had enjoyed perfect health: the breezes at that time always blew from seaward, and were cool and pleasant; *there was no cholera in Calcutta, nor any where in our neighbourhood:* it came upon us like a thunderclap. That it proceeded from some cause which had a general influence over the whole of the ship's company, but on some more powerfully than others, I have reason to believe, as there was a great and an immediate change in the looks of the people, which might, in some degree, be occasioned by the fears that pervaded their minds: but there was something more than that; for, on looking at the tongues of those otherwise in health, they were invariably much loaded, usually covered with a thick white crust." He adds, "the disease was certainly not contagious."

9. *Persons flying from places infected with the disease have not carried it with them.* "During the epidemic," remarks Dr. Albers in his official report, "it is certain that about forty thousand inhabitants quitted Moscow, of whom a large number never performed quarantine; and notwithstanding this fact, *no case is on record of the cholera having been transferred from Moscow to other places;* and it is equally certain that in *no situation* appointed for quarantine, any *case of cholera has occurred.* That the distemper is not contagious has been yet more ascertained by the experience gathered in this city."

10. *Like Miasmatic diseases it follows the courses of rivers.* "Generally speaking," according to Mr. Cother,* "the cholera has been observed to take the course of the rivers, more or less; and has always been more destructive in villages, whose situations are low, and contiguous to wet paddy fields. In some of the largest and most populous places whose sites are elevated, it has not as yet appeared at all, though at the

* Madras Report, p. 140.

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distance of only ten or twelve miles, in places otherwise situated, it has been very prevalent."

11. *During its prevalence all the inhabitants are more or less indisposed.* "During the prevalence of the disease at Orenburg, Dr. Onufriev states that there was scarcely a single inhabitant who had not some symptoms of disordered digestion. At St. Petersburgh, previously to the appearance of the epidemic, every person complained of a tendency to diarrhœa, which in some cases was very profuse, and it was the same at Berlin, according to Dr. Steffen. Six months before the epidemic invasion of Poland, sporadic cases of a most violent character occurred. The British consul at Riga, in his report to his government, states, that half the town has been visited by diarrhœa, and that the slightest deviation from the regimen now prescribed, (consisting principally in abstinence from acids, fruit, beer, &c.) invariably produces an attack of that nature, and generally cholera; fright and intoxication produce the same effect.

"Dr. Burne informs us, that during the raging of the cholera on the continent, there occurred at the Chancery Lane Dispensary, London, a great number of cases of dysentery, diarrhœa, and cholera, which had so decided an epidemic character, that he believed them to be produced by the causes which were in operation on the continent. Whilst cholera has been committing such ravages in various places in the Baltic, Elsineur and the adjacent islands have been visited by a peculiar form of disease, attended with much derangement of the digestive organs; sometimes passing into severe intermittent fever, and at others presenting the appearance of malignant typhus."*

12. It has appeared suddenly in the midst of an extensive population, attacking hundreds almost in the same hour. "In Mr. Jameson's Bengal report, it is stated that two million persons had assembled to celebrate a religious festival on the shores of the Ganges; the cholera suddenly broke out amongst them, while at their devotions, and in eight days destroyed

* Am. Journal, p. 483.

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twenty thousand persons! The pestilence was stayed, however, so soon as the multitude dispersed; it did not extend even to a village seven miles distant. In one week the greater part of the troops under the command of the Marquis of Hastings were attacked with the disease, and in twelve days nearly nine thousand individuals fell victims to it. In Bassora, the number of persons attacked by the cholera, almost simultaneously, may be judged of from the fact, that in fourteen days the deaths in that city, amounted to fourteen thousand. At St. Petersburg, in Russia, the disease appeared on the 26th of June, and in the fifteen days between that and the 11th of July, at least 3076 of the inhabitants were attacked."*

13. Its cessation is generally as sudden as its invasion. It deals its blow, and after a short pause passes on. "This was particularly the case in India, where, after prevailing for a time in one place, the disease, as it were, ceased at once its ravages, to make as rapid an attack in another, and often distant quarter. It very rarely remained in much vigour, in any one place for more than fifteen or twenty days, and sometimes was exhausted in a much shorter time."†

Finally, neither washerwomen, who received the clothing of the diseased, nor surgeons who examined the bodies of the dead, and inoculated themselves with the blood and secretions of the sick, contracted the disease. "The official report of the Medical committee, established by the Emperor at Moscow, states, that a physician who had received several wounds in dissecting the bodies of those who had fallen victims to the cholera, continued his operations, having merely touched the injured parts with caustic. He did not contract the disease. A drunken invalid, an assistant in dissections, having also wounded himself, had an abscess, which doubtless showed the pernicious action of the dead flesh, but the cholera did not attack him. Dr. Foy, an eminent physician at Warsaw, in a letter to the Royal Academy of Sciences at Paris, states, that he exposed himself in every manner to the

* N. Am. Med. & Surg. Journal, Vol. XII, p. 404. † Id. p. 405.

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infection; he infused into his own veins the blood of an individual who was dying of cholera; inhaled the breath of patients suffering under the disease; and even tasted the matter ejected from their stomachs, without sustaining any injury from the experiment beyond a slight nausea and headache."*

Even the contagionists admit that the infection will not spread unless favored by predisposition. They hold that exposure to heavy dews and sudden vicissitudes of weather, and excesses in eating and drinking, etc. prepare the system to yield to the impression of the contagious matter. But by the opposite party it is contended, with more plausibility, that the predisposition is brought on by an unhealthy state of the atmosphere, and that these causes are operative in exciting it into action.

Every argument which supports the contagiousness of cholera may be urged with equal force to prove that yellow fever is contagious—a doctrine once held incontrovertible in this country, but which is now almost universally rejected. That it continued to progress in Russia in mid-winter, when the thermometer was 16 degrees below zero, is unfriendly to the idea that it depends upon malaria; but like influenza, which spreads amid the coldest weather, it may originate in some other distemperature of the atmosphere; or it is possible that the heated condition of the houses in Russia, may be sufficient to keep up the decomposition of animal and vegetable matter, even during the intense cold of winter. Heat is admitted by all to favor its propagation. "It arose in the torrid zone. It ceases in India, Persia, and Syria, at the approach of winter, and recommences in spring. The conjecture of Moreau de Jonnes, that the spread of cholera, in spite of the severities of a Russian winter, was favored by the stoves, is not improbable. Clarke mentions in his Travels, that the artificial heat of the stoves in Russia often causes asphyxia, and adds, that numbers are buried alive in this state, owing to the ignorance of the Russian practitioners.†

At such a distance from the seat of the epidemic it must be

* Journal of Health, Vol. II, p. 152.
†Bost. Med. & Surg. Jour. Vol. V. p. 405.

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confessed that it is difficult to form a positive opinion on a subject where facts are so discrepant; and inquirers, on a review of the same statement, will probably come to different conclusions.

Another question of great interest presents itself to the mind; and it is, who, in the event of the appearance of the disease, will be its surest victims?

In its terrific sweep over other nations, neither the wealthy nor the noble, have been spared although its most awful ravages have been among the indigent and the intemperate. It always exhibited, however, a marked partiality for low, damp places, with crowded populations, and there constantly exhibited its most destructive powers. Thus Jessore, where the disease first prevailed with the greatest violence, is a "crowded, dirty, ill-ventilated place, surrounded by a thick jungle, and exposed, during the rains, to the effluvia of an immense quantity of stagnant water." The native town of Calcutta, in which the disease broke out is, composed, according to Mr. Kennedy* "of miserable lanes, narrow, dirty, and unpaved; and the majority of the dwellings are low huts, with side-walls built of mud, mats and bamboos, and covered with small tiles. Amongst the swarming population of these filthy receptacles, in which all descriptions of disgusting animal and vegetable odours abound, the distemper ran a long and wide career of destruction. Barely existing on a meagre diet of bad rice, the poor workmen, who had been abroad all day pursuing their laborious avocations in the sun, returned to their hovels in the most fitting state of body to contract the disease. Exhausted by the heat and fatigue, and confined during the night with their families, often six or eight in number, in a small space to which fresh air was a stranger, they were attacked by cholera in hundreds; and a frightful proportion of those attacked were swept away in the lapse of a few hours. This was more especially the case in the lowest part of the town and suburbs, and in the adjacent villages of Kidderpore, Manicktolla, Entally, Chitpore, Seal-

* p. 23, 4.

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dah, &c. The condition, indeed of the inhabitants of the latter places, is hardly to be imagined. These villages are made up of mud or straw huts, which are individually from six to twelve feet square, and so huddled together, that there is scarcely room to pass between them. In each of these unhealthy habitations a whole family resides, and, not unfrequently, cows and other domestic animals are added to the proper inmates. These dependencies, moreover, are every where intersected by pools, broad ditches, and channels, which, in the rainy season, become the reservoirs of foul water and corrupt weeds."

"In India," contagionists and non-contagionists alike agree, "the mortality was just in the ratio of the lowness of the scale of the inhabitants in society; servants and common labourers in the towns, and camp followers in the army, being the greatest victims; the native soldiers next; whilst the Europeans and their officers enjoyed greater immunity from the disease. Those in the civil employ of the East India Company, and merchants, English and native, were sufferers in but a comparatively trifling degree. In China, the disease selected its victims from among such of the people as lived in filth and intemperance. Barbaric Russia, with so many of her inhabitants slaves of the soil, and her soldiers mere automatons—debased in mind and morals—for the most part ill fed and ill clothed—knowing little other excitement than that of drunkenness, next numbers her myriads of victims to the cholera. With the progress of the disease westward to civilized Europe, we find its diffusion to be less, and its mortality in smaller proportion: Poland suffering less than Russia, Austria less than Poland, and Prussia less than Austria."*

"Every where in Europe," says Hawkins, "the lower orders have been the chief sufferers: the number of remarkable persons, and of nobility, who have fallen victims, has been extremely small; their names, indeed, might be easily enumerated. When such instances have occurred among the affluent classes, they might probably be explained by particu-

* Journal of Health, p. 158.

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lar mental anxiety, or a state of predisposing bad health." The soldiers of the conflicting armies in Poland have been amongst the chief sufferers; we may easily imagine the privations to which they have been exposed. At Warsaw, the Committee of Health announced, that very few persons of easy condition have been attacked, and that the disease has expended its chief ravages on the poorer inhabitants of the low and thickly peopled quarter of the city, near the Vistula. At Riga the sailors appear to have been most liable to the disorder." And such is true of all the countries in which it has prevailed. It would seem to be performing the office of a mighty scavenger, removing the refuse portion of society.

Dr. Jœhnichin of Moscow declares that drunkenness, debauchery, bad food, and personal indiscretions were incontestibly its predisposing causes. Dr. Richie informs us, that in China, the disease selected its victims from among such of the people as live in filth and intemperance. Dr. Darbal, a French physician resident at Moscow, who, with Dr. Jœhnichin imagines that the emanations or atmosphere of the sick form a focus of infection, admits, nevertheless, that this atmosphere is dangerous to those only, who are predisposed to disease through poverty, misery, drunkenness, debauchery, indigestion, and the effects of cold. "Out of 100 individuals destroyed by the cholera, at Warsaw, it was proved that 90 had been addicted to the abuse of ardent spirits. The females, who are rarely given to the use of these liquors, very generally escaped. In India, females and children are likewise observed to be less liable to the cholera."*

Such being the circumstances under which the disease comes on, and which give to it its formidable character, it is plain that the probability of escape is in proportion to the care taken to preserve the resisting powers of the system in full vigour. The contagionists allow that it is not apt to attack those who are not predisposed to it by debauchery, fatigue or exposure to the weather. And if not contagious,

* N. Am. Med. & Surg. Jour. Vol. XII, p. 408.

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the proper attention to diet, and cleanliness, and the avoidance of damp air, heavy dews, fatigue, &c. may prevent the predisposition, under which *all* labor who live in the infected district, from passing into the state of open disease. It has been remarked that where persons in the higher ranks of society have perished with cholera, they have generally been given to excesses in eating and drinking, as was the case with Marshal Diebitsch.

An elaborate effort has been made by Mr. Haygarth* to show that the disease has been produced, by damaged or unwholesome grain; and the fact is proved beyond all doubt, that the innutritious and unhealthy food of the poor has increased the fatality of the disease beyond any other circumstance. In a word, since the disease, contagious or non-contagious, shews a decided preference for low, damp, filthy and ill-ventilated situations—for persons depressed in spirits, given to intemperance and debauchery, living in miserable houses, exposed to vicissitudes of weather, and destitute of the comforts of life, we may, at once, learn how to escape it, and derive encouragement that it will not press sore upon our land where there is so little want and positive wretchedness.

On the subject of *quarantine regulations* the following appears to us the language which should be held to our municipal authorities. "All the facts connected with the disease which have come to our knowledge show, that the proper course of our public authorities, in order to prevent the occurrence amongst us of this formidable pestilence, does not consist in the imposition of additional and burthensome quarantine regulations, or a system of non-intercourse with the infected ports. On the contrary, they prove, that the only preventive is, to establish at home an enlightened Medical Police; to take effective measures to ensure the cleanliness and proper ventilation of our cities and their suburbs; to enforce upon every class the importance of temperance, and especially of abstinence from every species of intoxicating

* London Gazette.

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drinks; to promote by every means in their power the comfort of the poor; to prevent their exposure to excessive fatigue, to cold and dampness, and to endeavour to supply them with food which is at once cheap, sufficient in quantity, and wholesome in quality; and by all means they should continually endeavour, instead of exciting unnecessary alarm, to tranquilize and strengthen the public mind, and to inspire confidence in all classes of our citizens. So far as these important points are effected, we may rest assured that the danger of the introduction of the cholera into our country will be removed."*

The last question relates to the treatment of cholera, and on this topic, the most important of all, our information, unfortunately, is the least satisfactory. Every plan that could be imagined has been tried, and it would seem, with no marked difference of success. The *homœopathic* practice was reported to be in use at one time. We are hearing now of a resort to *transfusion*, and *galvanism*. The respiration of oxygen gas has been tried, upon the supposition that the blood in this disease is imperfectly vitalized.†

The articles of treatment however, most strongly recommended by a majority of British practitioners in the East Indies are blood-letting,—external warmth, with frictions,—the application of sinapisms on the belly and legs,—the internal administration of opium, aromatics, ether, spirituous fluids, or essential oils, or several or all of these combined, followed by the exhibition of gentle laxatives and calomel. Blood-letting is depended upon by most Russian, Prussian, and Polish physicians as a valuable remedy, wherever it is practicable to employ it. If the blood can be got to flow with tolerable freedom, it invariably does good when resorted to early.

Other remedies have been employed in the progress of the disease, as emetics, solution of salt, magnesia, subnitrate of

* N. Am. Med. & Surg. Journal, Vol. XII. p. 419.

† If such a practice is to prevail, the *nitrous oxide* promises more than any remedy of its class where a prompt, powerful, and transitory stimulant is required.

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bismuth, &c.; but rather empirically, than upon any well defined principles. Our situation will give us the advantage of the experience of our British brethren; and if the disease should reach us, we may hope that it will find us better prepared to receive it than most of the nations which have felt its ravages.

This discussion, which, it is feared, has been too long for many readers, would not have been ventured upon but from a belief, that the subject is one which has already begun, and is likely to continue, to excite a deep interest in our community. It is all-engrossing in Europe. In England and other countries, two hundred and twenty-seven works have been published concerning it within the last few months. It will be seen that we have attempted nothing original in this article, but have contented ourselves with quoting the remarks of others.

ART. VI.—*Description of a few species of Plants from the vicinity of Troy, N. Y.* By H. HULBERT EATON, A. M. (R. S.) Assistant Professor of Chemistry in the Medical Department of Transylvania University. March 17th, 1832.

WHILE studying the Botany of the vicinity of Troy, N. Y. a few years since, I discovered that several of the common plants of that neighborhood were either imperfectly or erroneously described in our botanical works, while some others appeared to be new. Further examinations have induced me to publish a few of the descriptions then written, and I hope they may be acceptable to some of our Naturalists. The descriptions are in the order of the Linnæan classification.

HOUSTONIA LONGIFOLIA, *Michaux.* *Stems* erect, cæspitose (rarely solitary), glabrous (rarely minutely sub-pubescent

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at the nodes), with alternate axillary branches below, dichotomous and compressed above: *leaves* opposite, entire, smooth, obtuse or sub-acute; *radical* ones spatulate, oval, sub-orbicular or lance-oblong; *cauline* ones linear or lance-linear, oblong, tapering to each extremity, sessile: *flowers* terminal, peduncled, sub-corymbose: *corol* more than three times the length of the calyx.

Root perennial. *Stem* from four to eight inches high, 4-sided, (two sides convex, and two concave or grooved). *Leaves* sub-revolute at the margins, from three fourths of an inch to an inch and a quarter long, sometimes sub-ciliate at the base. *Stipules* membranaceous, between the leaves. *Corol* purplish or white. *Peduncles* smooth.

Grows in dry rocky situations in New York, Pennsylvania, Virginia, Kentucky, &c. Flowers from June to August in Troy, while in Kentucky it appears as early as May.

POTAMOGETON ACUTIFOLIUM, *Link.* *Stem* branching, very much compressed, alate, zig-zag; *branches* axillary: *leaves* linear, narrow, abruptly very acute, three principal and numerous very small intermediate *nerves*, no connecting veins, alternate, those giving off spikes opposite: *stipules* free*: *spikes* cylindrical, rather compact, many-flowered: *peduncles* a little longer than the spikes.

Root perennial. Entirely submersed. *Stem* glabrous, from two to four feet long (varying with the depth of the water), one eighth of an inch wide. *Leaves* at least twice as long as the internodes, abruptly so very acute as to appear mucronate, very entire, flat, about one seventh of an inch wide, (varying from one to two twelfths); the numerous small *nerves* close and parallel. *Stipules* axillary, sheathing the base of the branches, lance-linear, slenderly acute. *Spikes* solitary, about twenty or thirty flowered, from six to nine lines long. *Peduncles* somewhat compressed, from eight to fourteen lines long, growing from one of the two opposite leaves near the apex of the stem and branches.

I first discovered this plant in 1829, and, being unable to find it described, wrote the above description of it, and gave it the name of *P. acutifolium*, and sent specimens to *Prof. Torrey*, and other gentlemen, under this name. I now find a plant under the name of *P. acutifolius* in *Prof. W. J. Hooker's* valuable "British Flora" of 1830, which agrees so well with my plant that I have ventured to retain the name I had given it in my M. S. (giving, as Hooker does, *Link* the credit of the discovery). Hooker describes his plant as having "leaves acuminate" (acute-mucronate?) and "spikes

* Not growing to the leaves or branches.

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oval:" and as the description is short, I cannot ascertain for a *certainty* whether his plant and mine are alike. Should this prove distinct, I would propose the name *P. lineare* for it. The *P. Zostericefolium, Schumacher*, appears to have broader leaves, larger and longer spikes, with "peduncles three to four inches long."

Grows in the Hudson river opposite Rensselaer School, Troy, N. Y. Flowers early in August.

SAMBUCUS CANADENSIS, *Linneus.* *Branchlets* glabrous: *leaves* pinnate; *leaflets* (5 to 9,) oblong-ovate or lance-oval, glabrous or sub-pubescent, acute, long-acuminate, mucronate-serrate, midrib and veins pubescent beneath and often above, terminal one petioluled, often obovate, the rest sub-sessile or short petioluled: *cymes* depressed, lax, glabrous, long peduncled, with four lateral divisions and often a central one.

Stem four or six feet high. *Branchlets* often with small scattering warts. *Divisions of the cyme* dichotomous, often with clusters of flowers in the fork. Many Authors describe the genus SAMBUCUS as having the corol "*somewhat urceolate*:" if they will look at *this* species when in full flower, they will find the corol *wheel-form* and not in the slightest degree urceolate.

Common throughout the Union. Flowers from June to September.

ŒNOTHERA PUMILA, *Lin.* *Stem* simple, or branching from the base, sometimes with a few branches near the top, pubescent or glabrous: *leaves* lance-linear, oblong-oval or oblanceolate, alternate, sub-sessile, more or less obtuse, tapering to the base, entire or remotely sub-denticulate, generally glabrous, sometimes minutely sub-ciliate: *flowers* sub-sessile or with short peduncles, axillary, on the upper part of the stem, (or, flowers in a foliaceous terminal raceme): *sepals** generally about the length of the tube, sometimes shorter and sometimes twice as long, pubescent outside: *petals* ob-cordate, length and breadth nearly equal: *germ* clavate-turbinate, with four wings and four ridges making it eight cornered.

From five to twelve inches high. The top of the *stem* is drooping at first but becomes erect as the flowers open. *Flowers* bright yellow, rather small.

* Divisions or leaves of the Calyx.

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Tufts of small linear leaves in the axils of the larger ones (being rudimentary branches).

This is rather a variable plant; at one time it appears to be the *Œ. chrysantha* of *Michaux*, while at another it agrees with the *Œ. pusilla*, *Mich.* I cannot say that Michaux has really described the Linnæan *Œ. pumila* as two new species, yet the plant before me often agrees with both of his *descriptions.*

Very common about Troy, and other parts of New York. Flowers in June and July.

EPILOBIUM COLORATUM, *Muhlenberg.* Variety **tenuifolium.* *Stem* terete, finely sub-pubescent: *leaves* finely and irregularly sinuate-denticulate or serrulate, smooth, short-petioled; *upper* ones nearly linear, gradually somewhat tapering to the apex, entirely green; *lower* ones a little broader near the base; *uppermost* ones of the stem and branches somewhat alternate: *sepals* lance-linear, pubescent, two thirds the length of the 2-toothed *petals.*

Flowers in August. Grows in wet meadows about Troy, New York.

ROSA PARVIFLORA, *Ehrhart.* Variety **inermis.* *Stem* erect, unarmed, branching above, somewhat glandular; *branches* glabrous, glaucous: *leaves* pinnate, petioled; *leaflets* about seven (from 3 to 9), oval, oblong, smooth or sub-pubescent above, finely hoary-pubescent beneath, acuminate-serrate, entire at the base, rounded at both ends, terminal one with the petiolule one fourth its length, lateral ones sub-sessile; *petiole* soft pubescent; *stipules* entire or nearly so, acuminate: *flowers* axillary and terminal, sub-corymbose, peduncled: *germs* and *peduncles* unarmed, glaucous, glabrous, (rarely sparingly glandular-pubescent); *germs* depressed-globose; *axillary peduncles* bi-bracteate: *bracts* opposite or nearly so, ovate, acute, sub-pubescent beneath: *sepals* wedge-lanceolate, sub-foliaceous at the apex, entire, glandular-pubescent beneath, more than twice the length of the germ: *petals* longer than the *sepals*, ob-cordate, sinus slight.

Stem two or three feet high, more or less red; the *glands* near the base of the stem are sometimes terminated by short prickles. *Flowers* large, from an inch and a half to two and a half in diameter: *petals* more or less red.

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For several years I was disposed to consider this a new species; subsequent observation, however, satisfies me that it is a variety of *R. parviflora.*

Grows on the banks of the Hudson and Mohawk rivers in New York. Flowers in June.

TEPHROSIA VIRGINIANA, *Persoon.* (Galega Virginiana, *Lin.*) Herbaceous, all over white-pilose: *stems* erect, simple, solitary or cæspitose: *leaves* pinnate; *leaflets* (17 to 33,) lance-oblong or oblong-oval, obtuse, mucronate; *terminal* one sub-cuneiform, often truncate or emarginate: *raceme* terminal, rather short, sub-sessile; *flowers* in pairs; upper leaves commonly with two axillary flowers: *calyx* white-pilose: *legumes* falcate, villous.

Stem twelve to eighteen inches high. *Corol* varied with red, yellow and white. Grows in dry situations, on islands, &c. about Troy and elsewhere.

HEDYSARUM OBTUSUM, *Willdenow.* Erect or ascending, rarely nearly prostrate: *stems* smooth or sub-pubescent, slender: *panicle* terminal, simple or compound, naked above, often leafy below: *joints of the loment* one, two or three, sub-orbicular, reticulate, hispid: *leaves* ternate, short-petioled, (from one fourth to two thirds of an inch); *leaflets* ovate or oblong-ovate, sub-cordate at the base, obtuse, entire, short petioluled, glabrous above, sub-pubescent or glabrous beneath: *stipules* subulate or lance-subulate.

Stem about two or three feet long, cæspitose or solitary, straight. *Root* perennial. *Panicle* when young a little viscid. *Leaflets* sometimes short-mucronate; *terminal* one not always sub-cordate; those of the lower leaves nearly orbicular. *Corol* violet or purple, becoming green.

Flowers in July and August in the Northern States, and, according to Elliott, in September in the Southern. Grows in dry fields and woods about Troy.

ERIGERON *SPATULATUM. *Stem* erect, simple below, finely scabrous-pubescent, furrowed: *branches* corymbose, one or many flowered with lance-linear leaves: *leaves* finely and compactly scabrous-pubescent, sub-acute, cuspidate-mucronate at the apex, minutely pubescent on the edges, nerved, oblong, rather opake; *radical* and *lower cauline* ones

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lance-spatulate with the base very long and slender, (petioloid,) irregularly tooth-serrate or denticulate; *middle* and *upper* ones lance-linear, sub-acute, or sub-obtuse; *upper* ones sessile sub-entire: *peduncles* furrowed, incrassate: *calyx* flat-hemispherical: *sepals* reflexed and membranaceous at the apex, acute, nearly half the length of the narrow rays.

Stems solitary or cæspitose, rarely pilose at the base, two or three feet high; *branches* nearly erect in maturity. *Leaves* sometimes sub-ciliate. *Disk florets* yellow: *rays* white.

This species has probably been confounded with the *E. strigosum* by many Botanists; while others have been deterred from describing it as a new species from the belief that so very common a plant could not have escaped the notice of the earlier writers. As I have only been able to find a description of it under the name of *E. strigosum*, and being well convinced that it is not that species, I have ventured to name it.

Grows in dry fields and woods in all the Northern States. Flowers in June.

ERIGERON STRIGOSUM, *Willd.* *Stem* erect, simple below, corymb-branched above, strigose-pilose, grooved; *branches* numerous, leafy: *leaves* sessile, glabrous, or strigose-pilose, ciliate at the base, mucronate, membranaceous; *lower* ones broad lance-spatulate, toothed or sub-pinnatifid; *upper* ones lanceolate, acute, entire or acutely toothed; *middle* ones sub-rhomb-lanceolate, tapering to both ends, acutely toothed in the middle and towards the apex, very acute: *calyx* flat-hemispherical; *sepals* acute, recurved and membranaceous at the apex, half the length of the narrow rays.

Root perennial. *Stem* two or three feet high; *branches* sub-divaricate in maturity, many-flowered. *Lower leaves* with the base lengthened and entire, acute or sub-obtuse. *Disk florets* yellow: *rays* white, bluish-white or purplish-white.

Grows and flowers in company with the *E. *spatulatum* though in less profusion.

NEOTTIA *LUCIDA. (Gyrostachys *lucida.) Entirely glabrous: *leaves* oblong-lanceolate, flat, three to seven-nerved, very lucid, with long broad-linear sheathing bases, sub-acute: *scape* terete, slightly angular above, sub-bi-bracteate; *lower bract* sheathing the stem: *spikes* oblong, densely flowered: *flowers* in three spiral rows, recurved-nodding: *lip* ob-ovate, undulate-crenate, round-obtuse, equaling the petals: *flo-*

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ral bracts longer than the germs, oblong-lanceolate, sub-obtuse.

Root fascicled, perennial. Six to ten inches high. *Leaves* about three, radical or sub-radical, edges united at the apex forming a small acute callous cavity. *Spikes* rather compact. *Petals* white. *Lip* yellow, with green lines.

This may be the *N. cernua*, Var. *latifolia* of authors, yet it is distinct from the *N. cernua* described below.

Grows in Troy and other parts of New York. Flowers in June.

NEOTTIA CERNUA, *Willd.? Stem* erect, terete and sub-pubescent above, smooth and somewhat three-sided-terete below, sheathed: *sheaths* foliaceous, three-nerved, acute, glabrous: *radical leaves* linear, about five-nerved: *spike* rather thick, oblong: *flowers* in three spiral rows, recurved-ed nodding: *lip* oblong, lance-ovate, crenulate, obtuse, longer than the petals: *bracts* lance-ovate, subulate and very acute towards the apex, sub-pubescent, longer than the germs, much shorter than the flowers.

Root perennial. About eight or ten inches high. *Lip* white.

The lip of this species is not "entire and acute," but *crenulate and obtuse;* and as there are, probably, several species confounded under this name, this may not be the true *N. cernua.*

Grows in damp situations about Troy, &c. Flowers in September.

ASCLEPIAS PHYTOLACCOIDES, *Lyon.* (*Pursh.*) Stem erect, simple, sub-pubescent: *leaves* very acute, sub-sessile or short petioled, glabrous and green above, paler and downy beneath; *lower* ones ovate; *upper* ones lance-ovate, or oblong-oval: *leaflets* of the *nectary* truncate, with from five to nine small unequal teeth, longitudinally cleft within; *horn* falcate, slender, nearly twice as long as the cup: *umbels* lateral and terminal, long-peduncled, (rarely a few sessile ones,) brachiate or recurved: *pedicels* very long filiform: *sepals* subulate: *petals* lance-ovate, sub-acute or sub-obtuse.

Root perennial. *Stem* from two and a half to four feet high, zig-zag above. *Leaves*, in age, often cast off their down. Lateral *umbels* growing from the sides of the stem between the leaves. *Petals* yellowish-green, or greenish-white within, and purplish without, about twice as long and five times as broad as the sepals. *Nectary* white, or nearly so.

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Grows in dry situations about Troy, and other parts of the Northern States. Flowers in June.

ARUM TRIPHYLLUM, *Lin.* I have examined hundreds of specimens of this plant, in different parts of the Northern States, without finding a solitary *monœcious* specimen; all were distinctly *diœcious*, rising from separate roots. The *pistillate* plant almost always has *two* leaves, while the *staminate* has but *one*.

MOMORDICA ECHINATA, *Willd.* Climbing: *stem* smooth, pubescent at the nodes: *leaves* alternate, scabrous or nearly smooth, five-lobed, cordate, sharply denticulate; *lobes* very acute, acuminate: *tendrils* nearly opposite the leaves, generally four parted: *peduncles* between the leaves and tendrils: *staminate flowers* in racemose-fascicles along the general peduncle; *pistillate* flowers in a single fascicle at the base of the peduncle: *calyx* of the *staminate flowers* of six subulate teeth; *corol* six parted: *berry* subpomaceous, round when young, ovate in maturity, four seeded, setose-echinate.

Root annual. *Stem* from six to twenty-five feet long, five-angled, somewhat five-grooved. *Leaves* often with two small lobes at the base, giving it the appearance of a seven-lobed leaf, with the sinus at the base entire; *petiole* about half the length of the compound raceme, sulcate. *Tendrils* sulcate, mostly four parted, sometimes only two or three; one *division* (when four) very long, opposite to a very short one; the others equal, intermediate in length. The *compound raceme* five or six inches long. *Sepals* lance-linear, oblong, ciliate-serrulate. *Corol* white or nearly so.

Grows on the banks of the Hudson River, and on islands about Troy, and elsewhere. Flowers in July.

LYCOPODIUM LUCIDULUM, *Mich.* *Stem* assurgent, dichotomous, (rarely simple): *leaves* spreading and reflexed, linear-lanceolate, narrow, distictnly serrulate, entire and linear at the base, very acute, lucid both sides, in about eight rows (from seven to nine).

Root perennial. *Stem* from four to twelve inches high. *Fruit* axillary, semicircular or reniform, yellow or yellowish-white.

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Grows in ravines and woods about Troy, and other parts of New York. Fruit perfect in August and September.

ONOCLEA SENSIBILIS, *Lin.* *Barren frond* deeply sinuate-pinnatifid; *divisions* sub-acute or obtuse; *lowest* divisions sub-pinnatifid, segments obtuse; *upper* divisions sinuate-crenate or sub-entire: *fertile frond* doubly pinnate: *stems* glabrous.

Root perennial. *Barren frond* with the lower divisions much the largest and longest, the others diminishing to the apex, giving the frond a triangular form. *Fruit* green becoming brown.

Common in all the Northern States in damp woods. *Fruit* perfect in August and September.

REVIEWS.

ART. VII.—*Essays on some of the most important articles of the Materia Medica, &c. &c.* By GEO. W. CARPENTER, Philadelphia.

THIS is an unpretending but praiseworthy little volume. It presents a brief view of the articles recently introduced into the Materia Medica, with such facts in relation to others as may guide the young practitioner in the selection and composition of his remedies. It comprises a great deal which the physician must know in a small compass.

Mr. Carpenter is a highly enterprising and scientific Druggist of Philadelphia, whose efforts are worthy of patronage. He has contributed a number of papers to the Medical Journals of the country, on subjects connected wich the Materia Medica; and some of the articles which he has introduced to public attention are of unquestionable value. We shall make such extracts from his work as are most likely to possess interest for our readers.

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Of the different species of Opium Mr. Carpenter gives the preference to the English.

"I have treated equal quantities of Turkey and English opium by the same process, and obtained twenty per cent. more morphia from the latter than the former; this would sanction the belief of the superiority of the English; which superiority, I think, is to be attributed to the careful manner in which it is prepared."

"*I have invariably* found the flat pieces of opium to be the best, much more free from impurities, and have frequently found in the same case of opium the flat pieces to break with a short clear fracture, while the thick round pieces were full of leaves and impurities, and I am thus always particular in selecting opium to reject the nodular pieces."

It is a matter of some moment to be in possession of the best preparation of a substance in such general use as opium. That preparation is, perhaps, the one which follows:

"*Denarcotised acidulous Tincture of Opium.*—Digest 1 oz. of coarsely powdered opium in one pint of sulph. æther, s. g. .735 for ten days, occasionally submitting it to the influence of a moderate heat, until it ceases to act upon the opium, separate the opium and dry it, then digest in spt. vin. rect. 8 ozs. acetic acid fort. 2 ozs. aqua 6 ozs. for seven days, and filter. This preparation will be found to possess great advantages over laudanum and the black drop of the shops, to which it will be much preferable, inasmuch as it will be destitute of the stimulating principle, (narcotine,) which produces such distressing effects, and frequently forbids the administration of opium, where it might otherwise be extremely useful. The addition of acetic acid, will contribute much to increase the calming or sedative effects, which are most generally desired, and for which opium is particularly given. By its union with the morphia, it forms in solution the active sedative salt of opium, (acetate of morphia,) and differs only from the solution of the acetate of morphia of the shops, in its state of purity, and as the extraneous matter with which it is associated has no effect on the animal system, it may be

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considered as good an article, and should be preferred for general use, in consequence of being much less expensive. As this preparation will always possess uniform strength, and a like proportion of opium, it certainly deserves a conspicuous place among our pharmaceutical preparations, and justly merits to supersede entirely the common black drop of our shops, which is a very uncertain preparation, differing every where in activity from the indefinite and vague manner it is directed to be made, to say nothing of the worse than useless articles which enter into its composition, such as yeast, nutmeg, and saffron. The black drop owes its superiority over laudanum to the acetic acid of its composition, and to that *alone*, and it will be admitted by those conversant with the articles in question, that acetic acid exercises a most powerful influence in modifying the effects of opium. This I can account for in no other way than by its uniting with the morphia, thereby rendering it much more soluble, and consequently facilitating its effects on the constitution, which are directly sedative, while the effects of opium in its natural state are stimulating."

The following is a good formula for the most valuable principle of opium, the *acetate of morphia.*

"I would here remark, that the acetate of morphia, of the shops, is a sub-acetate, and is less active than the acetate or super-acetate, which, being a deliquescent salt, must necessarily be kept in solution; it is, therefore, requisite in making the solution from the sub-acetate, to add acetic acid rather in excess than under neutralization. The following is the formula I have adopted, which will make a handsome solution, and is a preparation that will keep:—

Sub-acetate of morphia, - -	11 grs.
Alcohol, acidulated with twelve drops of acetic acid (pure *concentrated pyroligneous acid,*) - - -	1 oz.
Distilled water, - - - -	1 oz.

Dissolve the morphia in the acidulated alcohol, and add by

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degrees the water, and filter. Dose of the solution, from fifteen to twenty drops."

Peruvian Bark.—"Calisaya arrollenda, (Quill Calisaya). This variety is in quills from three quarters of an inch to an inch and a half in diameter, and from eight inches to a foot and a half in length. The epidermis is thick and may be readily removed from the bark; and hence you find in the seroons or cases a great proportion deprived of this inert part. It is generally imported in seroons weighing about one hundred and fifty pounds, and very seldom comes in cases; it has many deep transversal fissures running parallel, the fracture woody and shining, the interior layer is fibrous and of a yellow colour, and the taste is slightly astringent and very bitter.

This species of bark will yield a much larger proportion of the active principle, (quinine,) than any other bark in commerce, and consequently may be justly esteemed the best."

Sulphate of Cinchonine.—"An interesting paper was read before the Academy of Medicine at Paris, which is published in the Bulletin des Sciences Medicales, for November 1825, in which M. Bally states that he has experimented upon the sulphate of cinchonine, with a view to determine its febrifuge qualities. He administered this sulphate in twenty-seven cases of intermittent fevers, of different types, in doses of two grain pills, giving three or four in the interval of paroxysms; by which treatment he cured the disease as effectually and as speedily as with the quinine: of which twenty-seven cases, there were sixteen tertian, nine quotidian and two quartan. He remarked further, that the cinchonine has properties less irritating than those of quinine, and that consequently its employment should be more general, and preferred in all simple cases. I believe few or no experiments have been made by the physicians of this country upon the medical properties of the cinchonine; it consequently must be very little known by them from their own experience, but it certainly is a medicine which deserves at least a trial."

"From a number of experiments which I have made upon

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Peruvian bark in different states, I have observed as an unequivocal result, that the same species of bark, which when fresh is very productive of quinine, when old will produce little or none of this active principle, upon which its virtue as a medicine entirely depends."

Piperine.—"Piperine has proved a valuable adjunct to quinine; equal proportions of each will act with much more energy than the whole quantity of quinine or piperine alone. Dr. Chapman informs us, he has met with much success, in the treatment of intermittent fevers, by employing the following prescription.

R. Quinine, - - grs. X.
Piperine, - - grs. X.
M. ft. Pill, - - No. X.

One to be taken every hour in absence of fever.

Oil of black pepper is much more active than piperine, one drop being fully equal to three grains of piperine. Three drops of oil of black pepper added to ten grains of quinine, will greatly increase the powers of this remedy. Oil of black pepper alone is a valuable stimulant in typhus fever, and is a valuable adjunct to many medicines."

"From these experiments it is concluded, that the extract of pepper is not only one of the best succedaneums for the bark, but that it is even preferable to it, on several accounts.

1st. It never produces disturbance in the stomach or bowels.

2nd. It never fails in producing a cure.

3d. Those who were cured did not in any one instance experience a relapse.

4th. It produces a regular alvine discharge, as well as the excretion of urine and sweat.

5th None of those who were cured, experienced that sensation of languor, so common to a state of convalescence."

Tests of the purity of Sulphate of Quinine.—"1st. The sulphate of quinine must be soluble in rectified alcohol at a moderate heat, and if it contain sulphate of lime, soda, potash,

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or any other substance insoluble in alcohol, the adulteration will easily be detected.

2nd. It is soluble in acidulated water; say one drachm of sulphuric acid to an ounce of water, which will readily dissolve the quinine. By this means if there is stearine or acid margaride, (substances prepared expressly for adulterating this article,) they will float on the surface.

3d. It should give by salammoniac a white precipitate rather flaky, which is soluble in alcohol, and which on being exposed to a gentle heat, will consume without leaving the least residuum.

4th. After having dissolved it in acidulated water, it can be decomposed by means of a little salammoniac, it must then be filtered and evaporated. If sugar has been introduced into it, it will be easily detected by the taste, or by fire, which will produce its peculiar odour.

5th. If a white substance, insoluble in cold water, be found in the sulphate of quinine, heat the mixture to about 170 degrees of Farenheit. This will render the starch soluble, and its presence may be determined by the addition of an aqueous solution of iodine, which will immediately occasion a blue colour, and eventually a blue precipitate. The iodine must be added in very small quantities, and very slow, or the experiment will fail."

Iodine.—"Dr. Barron appears to have employed the remedy with some success in the treatment of scrofulous, phthisis, and certain other tuberculous affections.

Tincture of Iodine.

Take of	Alcohol, 36°	1 ounce.
	Iodine,	48 grains.

The iodine should be triturated fine with the alcohol in a mortar, and occasionally rubbed down in it; after standing 24 hours, it is fit for use, and should be filtered before using, as there is generally a portion of the iodine undissolved.

It is given to adults in the dose of from 4 to 10 drops, three times a day in a glass of sweetened water; the quantity may

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be gradually increased to 20 drops, (which contains about one grain of iodine) three times a day."

"*Solution of the Hydriodate of Potass.*"

Take of Hydriodate of Potass, 36 grains.
Distilled water, 1 ounce."

"*Ointment of the Hydriodate of Potass.*"

Take of Hydriodate of Potass, ½ drachm.
Axunge, 1½ ounce.

Mix.—This may be used to the extent of half a drachm night and morning in the way of friction upon a goitre or glands, enlarged with scrofula; at the end of a week, the quantity may be increased to a drachm or more, according to the age of the patient and extent of the tumour. Sometimes by these means a complete resolution of tumours is effected, which could not be removed entirely by saline solutions. This ointment has been successfully used in various cases of enlargement of the testicles, which had resisted other means. Sometimes, however, mere friction will not do, and recourse must be had to both modes of exhibition, but, in general, more advantage seems to be derived in scrofulous affections from the saline solutions. The activity of this ointment may be increased by adding from 10 to 15 grains of pure iodine to form what is called ointment of iodureted Hydriodate of Potass."

"*Iodurets of Mercury.*—These preparations are employed in the form of ointment, tincture, solution and pills, and have proved a valuable remedy in the chronic syphilis and venereal ulcers."

"*Chlorurets of Lime and Soda.*—The advantages of these substances were made known in 1812, by M. Mazuyer, professor to the faculty of medicine at Strasburg. At that time he employed them with great success, in the wards of hospitals in which typhus fevers were then raging, and for the purification of theatres of anatomy. M. Labarraque has demonstrated by a great number of experiments, that the chloruret of soda was one of the most powerful agents for the instantaneous annihilation of that disgusting fetor, which is

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produced by the maceration of intestines in water. The same gentleman extended the use of the chlorurets to the purification of all animal substances under putrefaction, and many distinguished physicians have used them as medical agents. A prize of three thousand francs to M. Labarraque, and two thousand to M. Mazuyer, was decreed by the Academy of Sciences, for this useful discovery."

"The chloruret of soda has chiefly been employed in medicine, and has produced highly satisfactory results, and has succeeded in all cases in which it has been used for the removal of general or local infections. Thus in carbuncle, in hospital gangrene, bad venereal ulcers, sloughing wounds, or those of the phagedenic kind, rapid advancement has been observed towards cicatrization, by the employment of the chloruret diluted in 10 or 15 parts of water. In numerous patients affected with ulcerated cancer of the breast, or of the uterus, which were in the hospital, it has been used daily as a lotion at the time of dressing; by this means the fetor of the discharge has been destroyed, and the sufferings of these unfortunate women have been much meliorated; and they have found from the use of these lotions, their sleep has been more tranquil. M. Alibert has prescribed similar lotions with advantage for herpes exedens. M. M. Roche and I. Cloquet have found it equally useful in the worst cases of gangrenous ulcers. M. I. Cloquet directs the diseased limb to be bathed in a solution of one part of the chloruret, with from 10 to 15 of water, and administer 25 or 30 drops of it in a pint of barley water. It has been used as a gargle in sore throat, as a lotion in ulcerated gums, exhaling an offensive odour. M. Lisfranc has used it extensively in burns and common ulcerations; for this purpose a solution of the chloruret, marking three degrees of the chlorometer of Gay Lussac."

"*Digestive Lozenges.*—These lozenges have proved highly beneficial in the treatment of dyspepsia, and have been found useful in promoting digestion by saturating the free acid of

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the stomach which is essential to the complete solution of the aliment.

Formula for preparing the digestive lozenges of M. D'Arcet:

Take of	dry pure bi-carbonate of soda,	5 grammes.
	Fine white sugar in powder,	95 do.
	Mucilage of gum tragacanth prepared with water,	q. s.
	Essential oil of mint,	2 or 3 drops.

Let the bi-carbonate of soda and refined sugar, each reduced separately to a fine powder, be put into a very dry bottle, Shake the bottle well that the powder may be thoroughly mixed. Take any quantity of this powder, let it be well mixed on a marble slab, with a sufficient quantity of mucilage of gum tragacanth, and oil of mint; form the mass into lozenges, weighing about one drachm, dry them in the air or on a stove. As these lozenges attract slightly the moisture of the atmosphere, they ought to be kept in well stopped bottles, or in a dry place. They may be flavoured with any other essential oil, or with the balsam of tolu, which is very suitable for that purpose.

Much benefit has been obtained from the use of these lozenges, taken immediately when the functions of the stomach are found to be in a deranged state; if taken before a meal, the digestive functions will be performed with more facility. These lozenges being very useful to assist digestion, ought to be prescribed before and after a meal to patients affected with gout or calculi."

"*Salacine.*—This article has lately been introduced here, and as far as it has been yet used, has given the most entire satisfaction. Dr. Miller of Lancaster informs me he has successfully treated several cases of intermittents, in which quinine appeared to have no effect, and which readily yielded under the use of salacine; and from the experiments which he has made with it, is fully of the opinion that it is a very valuable medicine, and more efficient than the quinine."

The *fluid extract of sarsaparilla*, first prepared by Mr. Car-

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penter, is decidedly superior to every other preparation of this substance.

"The dose of the fluid extract is two tea-spoons full, morning and night, in a glass of water. Two table-spoons added to fifteen ounces of simple syrup, immediately produces a mixture similar to a pound of the compound syrup of sarsaparilla, and the same quantity added to fifteen ounces of water instantly forms a mixture, equivalent to a pint of the Lisbon diet drink.

"One bottle of the fluid extract of sarsaparilla, is fully equal to a gallon of the syrup or decoction as is generally made.

"Two grains of corrosive sublimate carefully dissolved in a small portion of alcohol or water, and added to the syrup above formed, will be similar to the anti-scrofulous and syphilitic remedies lately introduced under various names."

"One drop of the oil of black pepper is equal to four grains of piperine. One drop of the oil of black pepper added to three grains of quinine, will greatly increase the powers of that remedy."

Balsam Copaiva.—"The oil of Copaiva is an active preparation, and it is the best mode of using this article, for being united with the balsam and solidified, it can be made into pills, which can be taken without experiencing the nauseating taste of the oil, while the oil alone cannot be taken otherwise than in draughts, which will subject it to the same inconveniences with the fluid balsam, having its disagreeable taste with its unpleasant effects."

"*Oil of Cantharadin.*—A piece of paper which has been made to imbibe this oil, forms an excellent blister, which may be accommodated accurately to the shape of any part, however irregular. The vesication thus produced is so exactly circumscribed, that the blister formed corresponds with the sharpest angles which may be given to the paper employed. One drop is sufficient to make a blister of the size of a quarter of a dollar. On such places where the skin is thicker or more solid than those which are less exposed and covered with clothing, it requires that the oil be applied two or three times

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in the course of one or two hours, or that the part to be blistered be covered rather more with the oil; this however will be seldom necessary, as blisters are most frequently applied on parts which do not require this particularity.

"One ounce of this oil contains the vesicating properties of nearly one pound of cantharides. Its use is so mild that generally speaking it produces a blister without the least disagreeable sensation, except on those places where muscles, nerves, or tendons are in a state of compression. We trust, an article possessing so many advantages will receive the sanction of the faculty."

Saratoga Powders.—The Congress waters at Saratoga have long had credit for curing consumption and other forms of scrofula. They are annually visited by from thirty to fifty thousand persons from all parts of the United States, the West Indies, &c. Those who cannot enjoy the pleasure of a visit to the Springs are furnished with a succedaneum in these powders.

"The water made from them possesses the same medical qualities, is as effectual in its operations, and precise in taste, as that taken immediately from the Springs. These powders are therefore recommended as a valuable remedy in all cases where Saratoga Waters are prescribed.

"These powders are superior to the Seidlitz, inasmuch as they are equally aperient and agreeable, and at the same time possessing tonic and chalybeate qualities in a superior degree, and are consequently better adapted to weak and debilitated constitutions than any other cathartic in use."

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ART. VIII.—*A Valedictory Address, delivered in the Medical Hall of Transylvania University, to the Medical Graduates, at the Commencement on the 19th of March*, 1832. By LUNSFORD P. YANDELL, M. D. [Published at the request of the Class.]*

GENTLEMEN GRADUATES:

NEARLY five months ago we met to exchange our first salutations, and to speak of the labors and pleasures of the coming winter. That season with its toils and its enjoyments is past. The eminence to which you then looked, and for which your hearts panted, has been attained. All the honors within the gift of your Alma Mater have just been, in due form, conferred upon you. No longer pupils, you are now invested with all the dignities of the Medical profession. Your success and usefulness in life, depend upon the manner in which you wear them.

On reaching a point so interesting in your lives, you pause instinctively to survey the scenes through which you have passed, and the prospect which lies before you. It is emphatically a new era in your lives. It is a grand climacteric. And standing now where you do you may contemplate the wide field of duty and of noble enterprise which you are about to enter. I will not dilate on its richness, for already your imaginations have pictured it to you in its most glowing tints. I will not dilate on the scenes of happiness to which you are hastening. Your hearts are now warm with the anticipation.

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* DEAR SIR,

In behalf of the Graduates of the Medical Department of Transylvania, we would respectfully request a copy of your Valedictory Address for publication in the ensuing number of the Transylvania Journal of Medicine.

F. G. COLEMAN,
A. M. GAINES,
C. MILLS,
COMMITTEE.

PROFESSOR YANDELL.

March 9th 1832.

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But rather, just as you are about to bid adieu to this seat of learning forever, I am commissioned by my colleagues, while expressing to you their approbation of your past conduct, and their hopes of your success, to offer you a few parting words of counsel, which if remembered, may stimulate or guide you in your future walk.

Nature generally does her part well in the endowment of the mind, and it is because we slight, or misuse her boon, that we so often spend our lives unprofitably. The servant of one talent was not scourged because he did not bring to his master an addition of ten other talents, but because he hid it slothfully in the earth, refusing to improve his slender stock. You ought to reject, now that you are about to place your feet upon the theatre of public life, every system of mental philosophy which does not hold, as its fundamental principle, that the minds of men, if not absolutely equal, owe their difference chiefly to education. And of all the truths which you can allow to sink deep into your minds, this appears to me most important,—that your fortunes are in your own hands, to slight or to improve them.

We are to presume, of course, that Medicine is to be your engrossing concern during the remainder of your lives, and I cannot, therefore, spend a few moments more acceptably to you, than in pointing out some of the prominent objects which should engage your future attention. And, *first*, you are not to cease to be diligent, persevering, judicious students. You must keep pace with the improvements in physic; a thing to be done only by unrelaxing industry. The periodical press will afford you many facilities, and that you may receive the latest medical intelligence, you should be a subscriber for at least one Medical Journal. In addition, you ought to read the most valuable new works as they are published.

2. *Pathology*, as connected with the inspection of morbid bodies, should constitute a subject of your diligent study. No question occurs more frequently to the mind of the conscientious, inquisitive physician, or occurs more painfully, at the close of every fatal case of disease, than *of what precise affection*

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did the patient die? It may be that he suffered with fever, or measles, or a more obscure complaint, and the practitioner may feel satisfied that he was judiciously treated, and imagine that it was congestion, or inflammation of the liver or the lungs that destroyed him; but the specific derangement it is impossible to understand, without a post mortem examination. It may be safely asserted that the light which has been thrown upon disease, in every age of the world, has flowed from this source. Without the aid of it every thing in medical doctrine is sheer conjecture. And, because this subject has been properly appreciated, the most important era in Medicine may be pronounced that which commenced a little more than a quarter of a century ago, and which has been adorned by the labors of Baillie and Portal, but chiefly by those of Laennec, Andral and Broussais.* The symptoms which manifest themselves during life, are now followed up to their source, by the scalpel, after death. The fever, the debility, the cough, are inquired after in the lungs, the heart, the brain, the stomach, and thus their cause and seat are ascertained.

This is the only true foundation of pathology. Upon this plan, many diseases, once deemed nervous, or as having their origin in debility, have been traced to chronic inflammation of the stomach and bowels. And this revolution has occurred, mainly, within the last thirty years. We still turn to the pages of Hippocrates, Van Swieten, Boerhaave, Sydenham, and Cullen for their facts, and especially for their admirable histories of disease, but so far as pathology is concerned they are little else than a tissue of hypotheses from beginning to end. They studied disease, as the metaphysicians of their day did the mind, as exhibited in its external symptoms; and their deductions from their premises were made in the closet. The seat of

* Bonetus published his Sepulchretum Anatomicum in 1675, a work which laid the foundation of pathological anatomy. Morgagni wrote his work De Sedibus et Causis Morborum, in 1760, or nearly a hundred years afterwards—It contains a prodigious collection of dissections of dead bodies, and still holds a high rank in the profession. These are the first successful attempts at investigating the hidden causes of disease. But these authors merely commenced a task, which has been so ably and happily prosecuted during the present century.

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the morbid affection was not sought out. Medicine did not become thoroughly an inductive science until about the close of the 18th century.

The great obstacle in the way of these researches, by which all admit that medicine is chiefly to be improved, is the want of large Hospitals, where an accumulation of cases and frequent deaths give constant opportunities for dissection. This is, indeed, a serious obstacle. But are we to fold our arms in despondency and remain inactive until such establishments shall adorn our country? Alas! before that period arrives we shall have yielded ourselves to the enemy against which we are preparing our munitions. If this difficulty is to paralyze our efforts, then all hope that we shall do any thing in this way to advance our profession, is at an end. But your true maxim here, as every where, is, that whatever has been done by others may be done by you. It is the resolution which makes difficulties vanish, and not the abundance of means. You will not be able to make so many autopsies as Broussais; but you may perform enough, not only to enlighten your own minds, but to clear up some of the obscure points in pathology. My observation has taught me, that it is no uncommon thing for the patient before his death, and his friends afterwards, to desire his physician to examine the seat of his incurable malady. Make it a point then always to ask permission to inspect the body of the deceased, where there is no good reason for omitting it; and never, through indolence, pretermit an opportunity for performing it.

3. The importance of continuing your *anatomical studies* cannot be urged too forcibly upon you. Anatomy, it need scarcely be told you, is at the foundation of a thorough medical education; and I hesitate not to affirm, that the most favorable time of your lives, for the practical cultivation of it, has just arrived. It is not during your attendance on medical lectures that you can pursue it most profitably, for your minds are then crowded by the amount of matter to be retained and digested. Those only, as your experience can testify, who spend three winters at a school of medicine, and the *first chiefly in the dis-*

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secting room, have the necessary time to make expert anatomists. A thorough knowledge of the relative position of parts may be attained, and is every year attained, by witnessing dissections merely; but if you aspire to skill in surgery, you must handle the knife yourselves. Practice alone gives dexterity in any thing. Civiale did not attempt to perform his new operation for stone on the living human subject, until he had practised it some thousand times upon the dead one, and upon dogs.

What course then remains? That you pursue these researches in the leisure and seclusion of your future homes;—that you fit up an apartment for it in your studies, and avail yourselves of every opportunity for dissection. These will occur every winter in every neighborhood. It will be attended with labor; but conscientious and ambitious men will count this as nothing, when they remember how much of human happiness and human life are staked upon their professional skill, and that, while thus engaged, they are treading the sure path to distinction.

4. *Comparative Anatomy* may well occupy a portion of your time. Those of you who may have a taste for physiological and anatomical researches will pursue it with pleasure. You will find no barbarous laws interdicting it, making it penal to be wise.*

5. *Natural History* must form a subject of your study during the remainder of your lives, if you aspire to the highest eminence in your profession. Under this head I include Chemistry, as well as Botany, Zoology, Mineralogy and Geology. Besides their close alliance to Medicine, they strongly recommend themselves to your favour by the circumstance that they may be cultivated while you are engaged in the active duties of your profession. Chemistry, you will all agree, every educated practitioner must understand. Botany and Zoology have intimate connexions with our profession, and there are good reasons why we should be acquainted with Mineralogy and Geology. An intelligent stranger would not hesitate to com-

* In a neighboring state the dissection of a dead human body is a penitentiary offence.

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mence a conversation with a physician on any one of these subjects, and would be much surprised at finding any lack of knowledge concerning them.

6. *Mechanical Philosophy* should engage a share of your attention. Many phenomena of the animal body cannot be understood without some acquaintance with it. Like every other branch of science, it has felt the ameliorating influence of modern improvement, and has lately been presented to us in a form as fascinating as it is instructive.†

7. Whatsoever, in a word, promises to improve the practice of Medicine, you should at once lay hold of and make available. The Stethoscope, a much neglected instrument in this country, has achieved great things in the hands of the profession elsewhere. You are aware that it was by the aid of it that Laennec was enabled to distinguish so accurately between the different affections of the chest. The only objection which has been made to its use is, the necessity of experience to give accuracy to the observer—a strange one, you will admit. But since it promises to afford information which no other means in our reach can give, I would advise you, when purchasing your medicines and surgical instruments, to procure this along with the rest, and, making it your *vade mecum*, to allow no opportunity of experimenting with it to pass unimproved.

8. And in addition to all the rest, *general Literature* puts in claims to your attention, which you must not disregard. It will enlarge the stock of your knowledge, improve your taste, and give you a facility and propriety in composition, which, if you would shine in your profession, you must resolve inflexibly to attain. Whatever may be the defects of early education, they may all be remedied, and even a classical purity and elegance of style may be attained by those who set earnestly to work, however late. Sydenham, according to his biographer, Sir Richard Blackmore, "never designed to take up the profession till the civil wars were composed, and then being a disbanded officer, he entered upon it for a maintenance, without any learning properly preparatory for the undertaking." Yet such was

† In Arnott's Elements of Physics; a work which should be in the library of every physician.

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his application to study, that he was able to compose his *Observationes Medicæ* in pure and classical Latin.

To all this it will be objected, *Ars longa, vita brevis;*

> "One science only does one genius fit,
> So vast is art, so narrow human wit."

And it is true that one science ought to engross your attention chiefly, and that all other studies should be made ancillary to it; but it is not, therefore, true, that human life is too short for the attainment of a competent knowledge of all the subjects enumerated. If two or three points are observed, any one who will, may accomplish all that is desirable in this way.

1. You should study one thing at a time. If Chemistry, for example, should be the branch first taken up, pursue it steadily until you have made yourselves familiar with its principles. In the prosecution of this study, you will find less apparatus necessary than you imagine, and this procure when you are purchasing your shop furniture. The ablest Chemists that have lived were the most straitened in their means when they commenced their researches. Sir Humphrey Davy is known to have performed his first experiments with the jars and gallipots of his master. And the man who made more discoveries than any Chemist of his day, and who has contributed more than any one else to the popularity of the science, began his course under the most inauspicious circumstances. This individual was Priestley. "He was an obscure dissenting clergyman, struggling with a very limited income, unsuccessful as a preacher from a defect in his voice, unacceptable to his hearers on account of his theological opinions, which involved him in almost perpetual controversy, loaded with a family, ignorant of Chemistry, unacquainted with the necessary apparatus, and so situated that he could not conveniently procure information." And yet, under all these embarrassments, we have seen, in the course of our inquiries this winter, the great things which he achieved.

Having mastered Chemistry, which you will do sooner than you would suppose, turn your attention to Mineralogy or Botany, and thus proceed until you have completed the whole

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round. Anatomy you may most conveniently cultivate during the winter, and pathology whenever an opportunity is afforded.

2. Study always with a pen in your hand. It has been said a thousand times, but cannot be repeated too often, that *legere sine calamo somnium est.* Hasty reading is very little better than no reading, and the tendency to it is most effectually corrected by making notes upon what we read. You should keep a diary for recording the passing observations of the day, and write on the first page of it, in large letters, *nulla dies sine linea.* Let no day pass without adding something to its pages. Be careful that it is kept accurately and tastefully. Let the chirography be neat, and the composition correct. Note the character of each season,—the state of the thermometer each day,—the quantity of dew,—the direction of the winds, and every other meteorological phenomenon. Record the appearance of every epidemic or endemic disease, the weather which preceded, the symptoms, post mortem examinations, modes of treatment, and all its features. Write down the history of every case marked by any striking peculiarity. If you thus record nothing worthy of the public eye, the habit will improve your minds, and the details you will find of singular avail in your future practice. You will learn to observe closely and think clearly, when you know that your views are to be committed to paper. And in time you may attain to that degree of mathematical accuracy in your profession,—of being able to trace every morbid phenomenon to its true source, and to apply specific remedies to a specific morbid condition,—without which, I am sure, no conscientious man can practice medicine with pleasure.

By pursuing such a course you will find, in a few years, and in the very midst of laborious practice, that you have made yourselves familiar with the whole circle of the Natural Sciences, so far at least, as is important to you as physicians. With your present attainments, any one of you who shall devote himself assiduously to this course of study, for five years, will be astonished at the end of that time, at the progress he has

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made. He will admire, that his mind was capable of such achievements.

Superficiality is the prevailing fault of the literary character of our profession in this country. A modicum of attainment too generally satisfies. The true love of science has not yet taken deep hold of the bosoms of its members. The fatal error prevails too extensively, that all necessity for study is over when a diploma has been obtained. And shall we believe that Sydenham rested from his labors thus early? Did Cullen terminate his studies when he brought his pupilage to a close? Was Rush content with what he knew when he left Edinburgh, clothed with whatever of character that Institution could confer? On the contrary, did not their industry increase as their years became fewer, thus virtually saying with the divine, that they should find time to rest in their graves? The truth is, whoever aims at eminence in medicine must wed himself to science, and abjure forever all thought of repudiation. Study must be the business of his life. If called from it by other cares for a season, the interruption must serve only to whet his mental appetite. He must prefer these pleasures above all other pleasures. He must see no comeliness in any thing, which is not connected with his main pursuit, or does not minister to his intellectual growth. Despair and indolence are the great foes of learning. You should despair of nothing,—grow weary of nothing, which has for its end professional improvement.

It is the aim of you all, as it ought to be, to make a subsistence by your profession. How you are best to succeed in this, is an interesting question. Many attempt it by direct means. Having received a diploma, they consider themselves made, and that all that they have to do is to acquire money. To get practice is their first and only object. They can conceive of no excellence in medicine, only as it enables them to accumulate wealth. And thus they make an exalted profession a *thing of merchandise.* Against a course, so humble and so sordid, I most solemnly warn you. Let your aspirations be purer and loftier. Seek not, like dishonest politicians, to conciliate the people by pandering to their prejudices. But rather aim to

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deserve patronage, and you will receive it. Even-handed justice, though late, will reach you at last, and a good conscience, and cherished self-respect will compensate for the delay.

Be choice in the selection of your future homes, but having made the selection adhere to it. Few things militate more seriously against the success of a young physician than the show of instability. By a frequent change of homes, he loses whatever devotion to his calling, and gentlemanly and amiable manners may have won for him where he was known. But stability, punctuality in business, habits of study, a dignified, manly and honorable deportment, and the display of ripe attainments will overcome all difficulties, and insure success in the midst of any competition.

Let me exhort you to keep clear of debt, and you can subsist upon a smaller income, while you are fixing your roots deep in the earth, and preparing to send forth a vigorous branch, that will out-top those early plants, which, like the Prophet's gourd, spring up in a night and perish in a night. That practice which comes to you as the result of your deserts, and not because you have sought it, will continue to flow to you in an equable and constantly increasing stream.

If you are free from debt, you may be independent, and without independence it is hard for a man long to continue honest.

You commence your public life in an age of noble enterprise. Philanthropy is busy in improving the condition of our race. As members of a profession having for its aim the alleviation of human suffering, you will be expected to take an active part in every such scheme. Give your eloquence and your example, then, to the cause of Temperance, Emancipation, the Bible, Sabbath School instruction, and whatever other institution is calculated to exalt and expand the human mind—and to free the world from the pollution of vice, and the curse of slavery.

I feel, gentlemen, in concluding this, the last address which I shall probably ever deliver to you, that I owe it to you, to my conscience, to the professions which I have made, and to that

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Being who is above all these, to exhort you to be something higher and better than wise men; and to declare my firm belief, that there is no system of sound morals, no safe guide for human conduct,—that "neither virtue nor knowledge has any vigor or immortal hope, except in the principles of the christian faith, and the doctrines of the christian religion." And let me add my conviction, that if you will bring to the study an impartial temper, and one half of the industry with which you have prosecuted medicine this winter, your investigations will result in a firm, unwavering and salutary belief in their truth.

It only remains for me to assure you, that the good wishes of this Faculty will always attend you, and, in their name, to bid you an affectionate farewell.

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DOMESTIC INTELLIGENCE.

The Use of the Trephine in Epilepsy.

THE following interesting case has been furnished us by Professor Dudley, being the sixth of the sort which has occurred in his hands. The other five cases were related in his paper on "Injuries of the head" published in the first number of this Journal. The success of this practice establishes two important principles in Surgery;—1st. That the brain will bear severe mechanical irritation for a great length of time, without fatal disorganization; and 2dly. that the use of the trephine under such circumstances may restore the organ to its former healthy condition. The cases of Mr. Cline, first published, we believe, in the paper just referred to, bear only a slight resemblance to those of Prof. D. and are not meant by him, or by Sir Astley Cooper, who has since noticed them, to establish these principles so valuable in practice.

Mr. ——— received a gun-shot wound on the head in the month of March 1832. On examination next day, his physician took from the wound a number of small bones, when, by reason of an injury done the dura mater, some brain escaped. So soon as the bones with the disorganized brain were removed, he was dressed, and at the expiration of two months he was thought to be well. The patient states, however, that a slight discharge continued to issue from the wound, and after some months Epileptic convulsions, with a great derangement of the general health, ensued. It was then discovered, on examination, that the matter issued from the surface of the brain, and that the cranium appeared to be diseased. Under these circumstances he came to Lexing-

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ton for assistance, his friend having furnished the preceding narrative.

On his arrival here his general aspect was that of an individual, who had suffered greatly from derangement of the cerebral and chylopoetic functions. A cicatrix of two and a half inches in length, on the central and posterior portion of the right parietal bone, pointed out the original injury.

On two points of the cicatrix were discovered small sinuous orifices, from whence was discharged an unhealthy pus. By the aid of a common probe diseased bone was detected.

The trephine was applied in the direction, and on one side of the original fracture. So soon as the segment of bone was removed by the trephine, isolated portions of bone were discovered beneath the dura mater, in a cavity of some dimensions occasioned by the absorption of the brain. Three of these, amounting in size to the thumb and finger nails, were removed, together with a morbid growth from the surface of the wounded dura mater. Simple dressings were then applied, and renewed occasionally for the week, when the patient was discharged, free from all embarrassment, both in the corporeal and intellectual functions.

ART. X.—*A Case of Hereditary Hæmorrhagic Tendency.* By JAMES N. HUGHES, M. D. of Simpsonville, Kentucky.

In the IV. vol. of this Journal, page 518, I gave an account of a case of Hereditary Hæmorrhagic Tendency, ascertained to be universal among the male members of the family in which it exists; the females being, at the same time, as universally exempt from it. Since the publication of this case I have met with one of the same character, in another and entirely different family, a succinct history of which I propose now to give, simply for the purpose of calling the atten-

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tion of the profession more particularly to this singular disease, for such it should undoubtedly be considered.

On visiting the house of a respectable farmer of this neighbourhood, my attention was directed to the case of a youth ten or twelve years old, which appeared to be rheumatic, and which was so pronounced. The correctness of my opinion was called in question by an old lady present, who was herself a member of the family, and intimately acquainted with the history of the case. On further inquiry I ascertained it to be one of hereditary origin, the rheumatism being only the sequel of another affection to which the boy had been subject from infancy, viz. hæmorrhage. Learning that this disease was common in every branch of the N. family, of which that of my friend Mr. P. was one, I enquired particularly concerning it, when the following facts were communicated:

1st. That spitting, vomiting and purging of blood; bloody urine; bleeding at the nose; extravasations of blood among the muscles and integuments of the body generally, especially of the extremities, producing dark discolorations and swelling, attended frequently, after a few days, continuance, with obtuse pain and stiffness, and copious and obstinate hæmorrhage from very inconsiderable incisions, on whatever part of the body they are made, have been exceedingly common among the male members of the connection.

2d. That the Hæmorrhage, whenever it has manifested itself, has been invariably attended with rheumatism to a greater or less extent.

3d. That the slightest sprains or contusions have generally been followed by rheumatism of the part.

4th. That the majority of the males, who have arrived at old age, have been much disabled by rheumatism.

5th. That on the approach of old age, the tendency to hæmorrhage has been less manifest.

6th. That a considerable number of the males have died in infancy and childhood.

7th. That deaths immediately from the loss of blood have been frequent; several resulting from the employment of the

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lancet, some from accidental wounds, others from various internal hæmorrhages, and two of the number, simply from the application of blisters,—"*the blisters*" in the language of my informant "*drawing blood instead of water.*"

8th. That, of the two diseases, hæmorrhage and rheumatism, the former has always maintained the priority.

9th. That the females, though in no instance sufferers from this predisposition, have, nevertheless, invariably transmitted it to their offspring.

And 10th. That the predisposition in question can be satisfactorily traced as far back as the fourth and fifth generation.

We present the above as facts, upon the authority of several intelligent and highly reputable members of the family to which they relate; a personal acquaintance with whom, enables us to repose the utmost confidence in their communications.

By comparing this case, with that previously published, they will be seen to exhibit a striking parallel in every important particular. In both, the tendency to hæmorrhage seems to depend mainly, if not entirely, upon a morbid condition of the capillary system; there being in neither, with the exception noticed in the account given of the first case, any morbid manifestations on the part of the larger blood vessels. The cause of this remarkable diathesis is, to us, shrouded in darkness; and it will perhaps appear hereafter, that post mortem examinations alone are capable of revealing its true character. When it was first presented to us, we regarded it as one of those rare anomalies in physiology, occasionally met with by physicians. But since our limited opportunities for observation have brought under our notice two distinctly marked cases, we are induced to suspect that it is not so unfrequent an occurrence as it was at first supposed to be; and although it has not yet been thoroughly investigated, it has not entirely escaped the attention of those who have been extensively engaged in the practice of medicine. If, as suggested, the affection spoken of, be not so uncommon as was

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supposed on first consideration, it is a question meriting much attention, whether it is susceptible of mitigation or relief? It is true that most hereditary maladies have proved extremely difficult of management. But on the other hand, it is not less true that even here, the efforts of the profession have contributed materially to mitigate the sufferings of afflicted humanity.

Analysis of the Sulphur Springs at Nashville.

The water of this Spring was first analyzed by the late Prof. Bowen. It has since been examined by other chemists, and is found to contain the following ingredients.

Gases.

1. *Carbonic acid.*
2. *Sulphurated hydrogen.*

Solid ingredients.

1. *Muriate of Soda,* (abundant)
2. Muriate of Magnesia,
3. Muriate of Lime,
4. Carbonate of Lime,
5. Sulphate of Lime,
6. Sulphate of Magnesia.

In composition it corresponds very closely with the famous Harrogate springs of England, the most abundant substance in which is muriate of soda.

The use of this water has been beneficial in dyspepsia, liver complaints, and other chronic visceral diseases.

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MISCELLANEOUS INTELLIGENCE.

Case of excision of the Elbow-Joint. By DAVID KERR, Esq. *Surgeon, Aberdeen.* Communicated by Mr. SYME.—Alexander Gray, aged 16, was recommended to me in the beginning of May 1830, with disease of the left elbow-joint of ten month's standing. The swelling extended a considerable way both above and below the joint. The ulcers had degenerated into fistulous openings; and through these a probe could be passed to the lower end of the humerus, which was in a curious state. There was a constant gnawing pain in the joint, shooting down towards the wrist, greatly aggravated by pressure or the slightest motion. His general health was much impaired; his pulse 120 and feeble; he had night perspirations; and, in short, was far advanced in hectic fever. Such were the leading symptoms of the disease when he was placed under my care. To give a detail of its history and treatment from the commencement were superfluous. It may be sufficient to state, that he ascribed the origin of the disease to an injury which he received on the joint when on a voyage to Jamaica, and that it gradually continued to gain ground, notwithstanding a variety of treatment by different practitioners, till at length his health became so much affected, that the hospital surgeon, under whose care he then was, deemed it necessary to recommend amputation,—an expedient, however, to which he refused to submit, and accordingly left the hospital.

It was soon after this that he applied to me. To improve his general health he was sent to the country, where he continued to gain strength for several weeks; but after the beginning of June his strength again began to decline, and by the middle of July had sunk so far, that it was evidently necessary to have recourse to an operation, for there was no reason to suppose that he could long bear up under a disease so irritative, and of so untractable a nature. Excision of

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the joint was therefore resolved on, and, as soon as the nature of the operation and its probable consequence were explained to him, he readily gave his consent. The operation was performed on the 23d July, in the following manner.

The position of the patient was that recommended by Moreau, so that the diseased arm hung over the edge of the table, presenting its posterior and outer surface. The brachial artery being compressed by an assistant, an incision was made posterior, but as near to the course of the ulnar nerve as could be ascertained from the diseased state of the parts, commencing about two inches above, and terminating immediately below the joint. A similar incision, parallel to the first, was made on the outer side of the arm; and a transverse section, which divided the tendon of the triceps immediately above its attachment to the olecranon, connected the inferior extremities of the two longitudinal incisions. The flap, consisting of the integuments, diseased cellular tissue, and lower extremities of the triceps, was dissected from the surface of the bone. The extent of the disease in the humerus being ascertained, the soft parts adhering to its anterior surfaces were separated from it by the scalpel, which was then passed between the bone and flexor muscles, and retained in that situation till the bone was divided by the saw over the handle of the scalpel, which served as a protection to the soft parts beneath. The removal of the lower portion of the humerus was completed by raising and detaching it from its remaining connections. The articulating surfaces of the bones of the fore-arm being thus completely exposed, they were found denuded of their cartilege, exhibiting the true carious appearance, and in every respect as much diseased as the humerus. It being therefore necessary to remove the upper extremities of the radius and ulna, the longitudinal incisions were extended about two inches below the joint, and the flap separated, so as to lay them bare. The whole of the ulna above the coronoid process was then removed by the saw, and the head of the radius by the forceps. The diseased parts being thus removed, the wound was sponged out, and

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as no vessel required the application of a ligature, the flaps were laid down and secured to each other by stitches.

The patient was placed in bed, with his arm supported on a pillow, and simple dressings applied. By the end of three weeks the hectic symptoms completely subsided, and from that time his health improved rapidly. The soft parts being much diseased, the wound healed up slowly. Several of the old sinuses continued to discharge a little for months, and one of them at this date affords a little serous exudation; but from the appearance which it has lately assumed, there is not the least doubt that, in the course of a few weeks, it will be completely cicatrized. The thickening about the joint has entirely subsided, and he retains an arm, which, though necessarily shorter and less perfect than the other, bears no comparison in point of utility to a stump. He can make very considerable exertion with it in lifting weights, can raise it to his head by the power of its own muscles, and employ it for many useful purposes, and, what is still more gratifying, it is daily increasing in strength and utility.—*Ed. Med. & Surgical Journal. Aberdeen, Aug.* 20, 1831.

Cholera.—The all engrossing interest of the subject induces us to add the following document to the already extended compilation which we have made. It is the production of an agent (Dr. Perron) sent to Russia by the French government, to investigate the character of the disease.

Suggestions on the Indian or Asiatic Cholera.—The object of the following observations, is to make known, in a popular manner, the symptoms of this dreadful scourge, and, as far as practicable, the means of preservation and treatment until medical aid can be procured. These observations were collected from the works published on this subject, and from experiments made at St. Petersburgh last summer, upon more than two hundred and fifty patients, treated both at the hospital of which I have the care, and in my private practice.

The first thing to be recommended, is a consultation with the doctor who is already acquainted with all the peculiari-

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ties of our temperament and constitution, in order to modify, according to our particular case, the general means of precaution and succor. If there be rules of a universal application, there are also some which vary with the different circumstances of constitution, temper, age, and sex. In diseases less rapid in their progress, the physician can, by a repeated and more minute examination, supply what may have escaped him; but in a disease which, in consequence of the extraordinary rapidity of its progress, requires a great promptitude in the examination, and the immediate recourse to most active treatment, it is an invaluable advantage to be in the hands of a physician so familiar with the physical and moral constitution of his patient, that he can, without loss of time, indicate the best remedies.

We cannot warn too much those, who, in consequence of their want of confidence in medicine for this dreadful plague, lose often the precious moments which may secure their safety. The great mortality which has reigned every where during the course of the cholera, and the great diversity of remedies recommended, have given birth to those doubts; but, though it be certain that we are yet in want of a specific remedy, it is not less certain that there have been, in all places, a great number of well authenticated cures. We have been so fortunate as to cure, not only the greater number of our patients attacked in the inferior degree, but we have even succeeded in many cases, in which the malady was in so advanced a stage that the patient appeared to be too far gone to recover. Besides, it is proved by experience, that the greatest mortality has taken place wherever no recourse has been had to medical aid, or when the remedies had been imperfectly administered.

Ordinary course of the Asiatic Cholera.—We may admit of three stages in this plague. The first is that of its inferior degree, of its imperfect development, or only of the *precursors*. The second embraces its ordinary development. And the third comprehends the cases, in which the most alarming symptoms of the former stage acquire the greatest degree

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of intensity. The first period is, unfortunately, too often neglected, at the great peril of the patient, because the symptoms are not then sufficiently alarming to give uneasiness; they are not even considered as belonging to cholera, but as the consequence of a simple gastric affection. The symptoms belonging to this first stage, are a sensation of uneasiness, either with, or without pain in the pit of the stomach, the want or loss of appetite, a great heaviness in the lower part of the abdomen, with a disposition to diarrhea, or a diarrhea partly developed, and which may precede the attack for sometime; afterwards some nausea, and even sometimes slight vomiting, and weakness in the limbs, head-ache, alternate shivering, and slight heat. These symptoms are not always united; sometimes one, and sometimes the other, predominates. During the epidemic, they are found more or less in every body; they last several days, disappear and return, and often have no other effect. They must then be regarded as an imperfect development of the disease.

The second stage is that in which the malady presents itself in its most striking characteristics. Here, too, the symptoms are not always the same in all individuals; but the following are generally observed: frequent and weakening evacuations, both by vomiting and purging of aqueous liquids, greyish, like rice water, commonly untinged with bile, inodorous, and connected with some particles of mucus. At the same time, respiration becomes more and more difficult; and this state is followed by excruciating pain, stifling and constriction in the region of the heart, interrupted by sighs. In the lower part of the abdomen, the patient experiences, alternately, pains accompanied with heat; the disposition to vomit and purge augments, whilst the urine ceases entirely. Thirst becomes unquenchable, and, with it, a strongly marked desire of taking cold drink, and chiefly water, to calm the burning sensation in the pit of the stomach. Restlessness augments to such a degree, that the patient hardly remains more than a single moment in the same position. The tongue becomes flabby, large, bluish, and even blue; afterwards it

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grows cold, as well as the breath. The extremities likewise soon grow cold, bluish, then blue, and are wrinkled as if they had been for a long time in warm water. The patient experiences at first pains and heart burnings, to which succeed very severe cramps, chiefly in the calf of the legs, in the joints of the toes and fingers: they are afterwards felt in the thighs; in the abdomen, and in the inferior part of the stomach. The pulse lowers; and becomes almost imperceptible; the eyes are blood-shot, dim, hollow, and surrounded by a dark circle. The face, which is also blue, contracts, and expresses both the increase of weakness and of the collapse, as well as the greatest sadness, and the anguish of an imminent death. The blood drawn from the veins is black, and so thick, that it runs with great difficulty, and is cold to the touch.

The third stage is that of a new degree of intensity in all or in a part of the symptoms detailed above, or there is a deceitful appearance of amelioration; that is, the evacuations and the cramps cease, and the patient no longer feels any pain, but the skin remains as cold as marble, the respiration becomes more and more weak, and there remains no trace of pulse.

The indications of amendment, consist in the diminishing of the cold of the body and extremities; in the reappearance of the pulse, however feeble at first; in the gradually ceasing of the alvine evacuations and vomiting, and chiefly in the reappearance of the urine.

The patient recovers sometimes very fast, that is, in the course of a few days; but very often, too, several weeks are necessary to his entire restoration. In short, it is also in that stage that the disease, by a reaction in the system, changes into a febrile malady, accompanied by a strong affection of the brains, or of the lower part of the abdomen, which, under the appearance of a nervous typhus, still presents a great deal of danger. The progress of the Asiatic cholera is so rapid, that the fate of the patient is commonly decided in a few hours; some die after four, seven, ten, or twelve hours; it is seldom that cholera lasts more than two days.

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When the means of the medical art can be administered promptly, and skilfully adapted to the peculiarity of the constitution of the patient, we may be almost sure of success. The means to be employed, must naturally vary according to the exterior circumstances which have brought on the disease, and with a due regard to the time elapsed before medical aid was procured. Generally speaking, success depends also on the age and constitution of the patient, and the intensity of the malady. Critical age with women, serous derangement in the circulation of the blood, chiefly in the lower part of the abdomen; *Physconia* in the same cavity, and the asthma which results from them; the predisposition of the body to apoplexy; greatly increase the danger.

Etiology.—Among the number of causes predisposing to the plague, we reckon the changes which happened in the bosom of the earth, or in the atmosphere, which according to the geographical situations of different places, engenders, in the animal system, more or less disposition to diseases resembling cholera; that is, which produce in the animal body the changes named; disposition, constitution, general epidemic; the latter has reigned in all parts of European Russia, without exception; but it has been felt sooner in some places than in others. At the epoch when cholera exercised its ravages, there has been every where a time when the general morbific characteristics approached that of cholera, and produced maladies very much resembling it, though in but a feeble degree; a circumstance which took place during the autumn of 1830, and even in the spring of this year, 1831. It is that *disposition*, *constitution*, *general epidemic*, which joined to some local circumstances, brings on, afterwards, the complete development of the *disposition*, *constitution special epidemic*, or even cholera under its most formidable aspect. If, on the one hand, the geographical situation of a place has its share of influence in the epidemic; on the other, the malady is more or less characterized according to the constitution of the individual; and hence the more or less disposition, of different persons, to be attacked by the

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plague. Among the predisposing causes, we place critical age of women, the hermorrhoidal disposition, with serous derangement in the circulation of the blood in the portal vein; a great irritability in the lower part of the abdomen, in persons addicted to the use of spirituous liquors; obstructions, enervations of the nervous system, in consequence of the abuse of the pleasures of Venus.

The accidental causes are, heavy cold, the dwelling in small and damp houses; moral affections, such as dread, fear, anger; indigestion, the use of food producing flatulence, cold and raw vegetables, acid and foaming drinks, drunkenness, the want of a sufficiency of food, or the bad quality of it.

As to what constitutes the essential principle of the Asiatic cholera, we must confess that we have, as yet, as little knowledge as of any other miasmatic or contagious disease. It probably consists in an imponderable fluid, like magnetism, galvanism, electricity, whose positive strength is recognized by our senses alone; and that of cholera, on the human body, is, unfortunately, but too striking; for the whole of the nervous system, and chiefly the ganglionic system of the lower part of the abdomen, as well as the sanguineous system, are strongly affected by it; the latter in its chemical properties, and, of course, organically. Experience and ulterior observations will, perhaps, decide which of the systems suffers first.

It would perhaps, be here the proper place to discuss the question of the contagion, or non-contagion of the cholera: but it is far from being settled, and I will only state, that, before the plague broke out at St. Petersburgh, I myself admitted that it was contagious; but that, afterwards, experience and my observations have produced in me such a conviction, that I found myself obliged to adopt the contrary opinion.

Preservatory means.—We must carefully avoid taking cold, and, for that purpose, dress more warmly even in summer. It is advisable to wear a wide flannel, or raw silk belt, in contact with the skin.

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If we cannot avoid going out in the damp and cold air of the night, we must dress still warmer.

The pure air of the country cannot be too much recommended in summer: and, at all seasons, the atmosphere of dwellings, and chiefly that of the bed chamber, ought to be renewed as often as possible, and purified with vinegar, evaporated by means of towels dipped in it, and exposed to heat. A little chloride of lime, mixed with sand in equal parts, and spread out in dishes, will answer the same purpose. We must also avoid lodging too many people in the same room; and it is scarcely necessary to add, that we must observe the greatest cleanliness.

Experience proves that, in all epidemic, miasmatic, or contagious diseases, the timid are the first victims; the same is the case in cholera. Fear, sorrow, anger predispose to the malady, and give it a fatal turn: a full confidence in God, and an entire submission to his will, courage, fortitude—such are the best preservatives against this plague.

Those who live temperately have no need of any great changes in their diet. They may eat of pearl barley, rice, sago, oatmeal, gruel, soups, as well as of the most digestive fish soups; but they must avoid eating of soups which have been made with many vegetables, and chiefly with cabbage.

Beef, veal, mutton, chicken, and game, boiled or roasted, may be recommended; but we must, by all means, abstain from eating bacon, geese, and ducks.

Fish of easy digestion, such as perch, carp, &c. may be recommended, provided they be quite fresh, and stewed with a very little butter, and seasoned only with salt. Sauce in which there is a great deal of cream is hurtful. Fish of difficult digestion, such as salmon, either fresh or smoked, eel, &c. and in general all smoked and dried fish, with the exception of herring, are to be avoided. The free use of herring, may be permitted to those who are accustomed to salt food.

Those who are disposed to diarrhea, or flatulence, must entirely abstain from eating vegetables; and even those who are least liable to diarrhea and flatulence, must be very cau-

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tious in the choice of vegetables: they ought not only to be quite fresh, but of easy digestion, such as spinage, asparagus, green beans, and even young peas, boiled in broth, and without cream. They may also eat potatoes, not too young, nor too fresh. All kinds of vegetables producing flatulence, such as dried peas and beans, every species of cabbage, and chiefly saurkraut, must be carefully avoided.

All salads, either with or without vinegar, or sour cream, as well as cucumbers, summer and winter radishes, onions of all kinds, and all kinds of mushrooms, are to be avoided.

Abstain from eating fruit. Those who have not experienced the influence of the epidemic may eat strawberries, provided they take them in small quantities with wine, and not with cream, after dinner, and never at breakfast.

Soft boiled fresh eggs may be recommended.

Farinaceous or mealy food, such as rice, oatmeal, and sago boiled in broth, water or milk, are of easy digestion, and constitute, as I have said before, good nourishment; but heavy farinaceous food, such as dumplings, puddings, pastry of all kinds, and even rye-bread, &c. must be avoided. Sweet meats, and chiefly ice-creams, are very injurious.

New milk and boiled milk may be recommended, except to the small number of persons who cannot digest it; but cold milk, and chiefly sour and curdled milk, must be avoided.

Crabs and cheese cannot be eaten with impunity.

Coffee and tea may be taken, even with a little cream, by those who are not much affected with flatulence; but they will do well to add a little port or Madeira wine.

We must avoid fermented drinks, except strong beer, from which, however, the foam must have been previously taken off; but this drink, too, recommends itself only to those who are in the habit of drinking it; in case of diarrhea, it must be given up.

Good wine, taken in a small quantity, has a good effect; but it is well ascertained that the least excess of any kind, particularly disposes to cholera. The wines of warm climates, such as port, Madeira, Malaga, &c. taken in very small quan-

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tities, chiefly in the morning before going out, are wholesome, and much to be preferred to the more acid wines of France and of the Rhine. We must, however, recommend much precaution to ladies who are not in the habit of taking wine, in order that its use may not have an injurious influence over their health.

Acid drinks, such as lemonade, &c. are hurtful; even water must be taken only when freshly drawn, and not too cold, but taking care to mix with it a little wine.

I think it proper to state here that, during the whole reign of the epidemic, and, above all, while it rages in its full strength, it is indispensable carefully to abstain from the pleasures of hymen; all imprudence of this kind, chiefly if repeated, particularly disposes to the plague.

Treatment of the Asiatic Cholera.

There is no disease in which the same treatment will epply to all possible cases; on the contrary, we must always take into consideration the constitution of the patient and the stage of the disease; and just so it is with respect to the treatment of the cholera. Let it not be thought, that, in this malady, it is sufficient, as it is in many others, to administer remedies internally; on the contrary, these remedies have produced comparatively but little effect; whilst assiduous care, combined with exterior applications faithfully persevered in, have succeeded in restoring patients labouring under very severe attacks.

The treatment which I have followed, as well as many of my colleagues, and from which we have obtained the greatest success in the first stage or degree of the malady, and which has produced four times upon myself the most salutary effect during the course of the epidemic, was the following: As soon as the first symptoms indicated appear, that is loss of appetite, flatulent noise in the lower part of the abdomen, even vertigo and anguish, accompanied by nausea and diarrhea, we must go to bed, and take immediately a cup of strong coffee without milk, with or without sugar; and, soon after, from four to six drops of oil of peppermint upon a piece

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of sugar: we must apply, at the same time, a bag filled with oats, ashes or bran, very warm, upon the abdomen, changing it as often as possible, and keeping ourselves quite warmly covered. We may repeat the same means, until we have succeeded in bringing on a very copious perspiration, which, when it can be produced, brings at once the attack to a favorable crisis. If, however, much head-ache, and a severe pain in the pit of the stomach should be experienced, and should not yield to a large mustard plaster applied to it, bleeding, to the amount of a pint, or even a pint and a half, becomes indispensable, and must even precede all other remedies, if the constitution of the patient be strong and sanguine; even the most debilitated ought not to apprehend any ill consequences from bleeding if the symptoms above detailed are strongly marked; for their debility is deceitful, and will cease as soon as they are delivered from the blood which was stagnant, or had not a sufficiently free circulation.

It is still more important to send the patient to bed if he has the diarrhea, for many people have experienced the full development of cholera, and even have died, for having, in the beginning, refused to take their bed for a simple diarrhea. I have often cured by mere repose, and the warmth of the bed, a diarrhea which would have certainly degenerated into cholera. I did not even permit my patients to rise from their beds for the purpose of evacuation, but they made use of bed pans.

For diet, chicken broth, with a little rice or sago boiled 4 or 5 hours, to which we may add a little red wine. A decoction of salep, in the juice of the black muscade grape is likewise to be recommended. The drink must consist of rice water, or toast-water, with a little red wine.

If the oil of peppermint, the tea of melissa, the ipecacuanha administered every three hours in small doses of one-tenth of a grain, and the warm bags do not stop the diarrhea, it becomes necessary to apply mustard plasters upon the whole surface of the abdomen; and, if we should not thus succeed in overcoming the disposition to vomit, we may give soda pow-

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ders composed of acidulated carbonate of soda, 10 grains; essential salt of tartar, 6 or 8 grains, and of elio-sachar-citri, 10 grains; swallowing immediately after a tea-spoonful of lemon-juice, with a little water. In such cases, I have often arrested the progress of cholera by means of emetics and castor oil, the only purgative I have used during the epidemic. I have not been less fortunate in cases of diarrhea.

In the second stage, in which medical aid is certainly very important, nothing however ought to be done with precipitation. We must never forget that the first thing to be attended to is, to restore the blood to its circulation and organical warmth. In the greater number of cases, we begin the treatment, by applying to the whole surface of the abdomen a large mustard plaster, which must cover the pit of the stomach. If, however, the patient is too irritable, the mustard plaster may be divided, and a number of small plasters applied in different places, one after another, though, to speak the truth, this last method is not so active and effectual as the former. Frictions must be instituted over the whole body of the patient; and that is best done by four persons rubbing all at once, with dry flannel, powdered over with mustard. I have always observed, that frictions made with spiritous liquors, were much less effectual, inasmuch as the body grew cold as soon as they ceased rubbing it. The same has been observed by many of my colleagues. For the parts of the body in which the cramps became too severe, I made use of a mixture of oil of turpentine, three ounces; with oil of tusquiam, half an ounce; oil of gilliflower, three ounces and a half; spirits of sal ammoniac, from half an ounce to six drachms—oil preserving the heat of the body much better than spiritous liquors.

This treatment is followed by mustard plasters on the calf of the leg, the thighs, the soles of the feet, the arms, the spine, either alternately, or even all at once, according to the urgency of the case.

We have been taught by experience, that baths of all kinds, including vapour baths with vinegar and water, not only

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remained without effect, but even give great pain to the patient, who is exposed to take cold. If bathing was so effectual at Moscow, we must attribute it to the season; for the plague broke out in that capital in the month of October, and lasted the whole winter; in consequence of which, the patients were carried to the hospitals half frozen.

It has been equally impossible for us to follow the internal treatment prescribed either by the English physicians, or by those of Moscow; that is, we could use opium only with the greatest circumspection, for that active remedy has unfortunately produced, too often, congestions of the brain so intense that nothing could calm them; and that, too, without arresting the progress of the malady. I can say the same of calomel administered in large doses: the use of the latter has been almost entirely rejected.

I have been more fortunate in the use of bismuth powders, recommended by Dr. Leo of Warsaw, and taken every two hours in doses of three or four grains, with ten grains of sugar; though this remedy has not always answered my expectations. Much more favorable results were obtained from a remedy truly Russian, and which has been lately recommended by Dr. Searle of England, who practiced at Warsaw during the epidemic. This remedy has been, for very many years, used by the Russians in affections analogous to cholera but much less intense; it consists in a solution of common salt, two table-spoonsful of which must be dissolved in a glass of boiling water, strained, and taken in one draught, while yet luke warm; it is thrown up in a very few minutes, and in the greater number of cases, it is already mixed with a little bile; which circumstance is a favorable one, since it proves that the spasm of the biliary ducts has diminished. One table-spoonful of the same solution is afterwards given every hour; this dose is taken cold, and is followed by a smaller dose still; that is, by a tea-spoonful taken at a time, until all alarming symptoms have subsided. It has also frequently happened, and that even in very severe attacks, that the first dose was sufficient. At other times, namely, when there was no bile

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mixed with the water thrown up, I have been obliged to make a venesection for the purpose of taking six or eight ounces of blood; and, when the blood would not run, I applied leeches to the pit of the stomach, or drew blood from it by cupping, and thus relieved the patients of a burning sensation, and of the fatigue of frequent vomiting.

The patients treated in this manner, that is, with a solution of common salt, were often very soon restored to health, and could hardly be recognized after a few hours. In a few cases, the disease took the character of a congestive typhus, but not very intense. In a very few cases, I have been obliged to discontinue the solution of common salt to give the bismuth in the above indicated doses, or camphor dissolved in ether, or mixed with the tincture of canella, or any kind of aromatic water, to which should be added a mucilage of gum-arabic and sugar. Such are the remedies which have best succeeded. As soon as the cholera assumed the character of a typhus fever, I applied leeches behind the ears or on the neck, and cold water and even ice on the head, blisters on the neck and calf of the legs; prescribed castor oil when it became necessary, and chiefly oxygenated muriatic acid, taken in doses of a half an ounce, or even an ounce, upon six ounces of decoction of salep or marsh-mallow.

With respect to drink, I consulted the patient's own wishes, not, however, before he had thrown up the solution of salt. The best drink, however, was cold water often repeated, but in small quantities; I observed that the patients always ejected warm drinks. I have even given ice broken in small pieces, and recommending that only a part of it should be swallowed, and the other suffered to melt in the mouth.

In the third stage, which is that of paralysis, there is hardly any remedy. Emetics, phosphorated ether, that is, two grains of phosphorus and two drachms of ether, well shaken together, or, what is still better, a solution of six grains of phosphorus in a half ounce of oil of sweet almonds, and taken every half an hour in doses of ten drops, upon the same quantity of ether as recommended by the physicians of Moscow.

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The whole class of excitants, such as the spirits of hartshorn, camphor, musk, Champaign wine, sulphate of quinine, &c. administered in the supposition of an intermittent fever; frictions, mustard plasters, baths, pumping of cold water upon the pit of the stomach and spine; commonly produced no other effect than to prolong, sometimes, the sufferings of the patient. If, however, we should observe some favorable symptoms, it becomes essential to avoid a too active internal treatment.

The faculty does not recognize any predominant remedy, nor any one very remarkable for success in particular cases; a circumstance which may be attributed to the rapidity of the progress, and the malignant character of the epidemic. It is probable that cholera, like all other epidemic diseases, such as small pox, scarlet fever, &c. is perhaps, of different characters, more or less malignant. That may also account for certain remedies, such as bismuth, having proved sometimes so effectual.

Additional reflections upon the use of bleeding, and of opium, in the treatment of Cholera.

I have adopted bleeding only with the young and plethoric patients, and that at the very beginning of the attack, in case of severe pain, or when the above indicated remedies for the first stage have not had the desired effect; it is then that bleeding was so effectual, that no other remedy could be substituted for it. The object of bleeding is to diminish that part of the blood, which, through the influence of miasm, is disposed to stagnate in the interior part of the body. By means of bleeding, we prevent, or at least diminish, the spasm, as well as the venous congestion which results from it: and by that means relieve the heart and lungs from all oppression, in order to restore to them the full power of their respective functions. We can obtain that result only in the two first stages of the malady; that is before circulation has ceased in the articulations of the hands. In cases requiring bleeding, it is consequently, of the greatest importance to bleed as soon as possible; for the blood sensibly alters in its chemical nature, and no longer runs from the vein; or, if it does, it is with great

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difficulty, and in so small a quantity as renders it inadequate to the relief of the patient. When the disease is too far advanced, bleeding has sometimes hastened death.

The nature of the epidemic at St. Petersburg convinced me of the impossibility of following the method of the English physicians, who, in India, bleed to the amount of more, and much more, than a pound of blood. I have always confined myself to ten, eight, or six ounces.

The use of opium, so much extolled by English physicians in India, and by them prescribed in large doses, has as little succeeded in my practice as in that of my colleagues. It has, on the contrary, according to all our observations, served only, as said before, to determine the blood towards the brain, and to render the state of stupor and somnolence much more difficult to overcome, than when we made no use of that remedy; hence, I soon gave it up almost entirely. What has led me to the adoption of that plan, is, that vomiting and diarrhœa are only symptoms, which, in the more severe attacks, are not the most prominent; it even very frequently happens, that these symptoms are hardly perceptible; and, as we cannot admit that the individual attacked with cholera, dies solely of starvation caused by vomiting and diarrhœa, but in consequence of the paralysis of the nervous system, chiefly that of the lower part of the abdomen, or ganglionic system, and of the chemical and organical decomposition of the blood, we may easily conclude that opium cannot be a universal remedy for cholera.

The brilliant success mentioned by English physicians has been of very rare occurrence, and due only to the very large doses which they have had the courage, or rather the temerity to administer. The ordinary doses, as we have had occasion to observe in our experiments at St. Petersburg, have been very generally injurious; for they are not active enough in the beginning, and paralyze, in their secondary effect, very visibly and strongly, all the functions of the patient: they contribute very much to the complete development of somnolence, which is sometimes consequent to cholera; but then it is less strong, and can be soon removed, if no opium has been administered.

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THE

TRANSYLVANIA JOURNAL

OF

MEDICINE

AND THE ASSOCIATE SCIENCES.

FOR APRIL, MAY AND JUNE, 1832.

Original Communications.

ARTICLE 1.—*An Essay on the Topography and Diseases of Rutherford County, Tennessee.* By FREDERICK E. BECTON, M. D. *of Murfreesborough, Tennessee.*

(Read by order of the Medical Society of Tennessee, 6th May, 1831.)

IF in morals man is a bundle of habits, he is physically not less a bundle of organs. This is true not of man alone, but the remark is applicable to all vital beings, whether vegetable or animal; and it is also equally true, that each organ of either kingdom is a bundle of tissues, or a collection and happy adaptation of textures one with the other.

As no two organs of the system, (duplicate organs considered as units) are either composed of the same materials, or perform the same duties, so no two tissues of the body are alike. The proximity of one organ to another has no influence in enabling it to perform the duties belonging to or required of its neighbour. It is not material in what relation they are put, the one to the other, whether remotely or in propinquity, they will not act for each other. The blind man

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may think he well describes scarlet when he says it is like the blast of a trumpet; the deaf may imagine that the concord of sweet harmony is like the perfume of a violet, but the fallacy of such conceptions at once declares to us in language louder than the trumpet's blast, that the ear will not see for the eye, that the nose will not hear for the ear, that the eye will not taste for the tongue, and that the tongue will not smell for the nose.

So with the tissues. The osseous tissue will not feel for the nervous, the nervous will not convey blood for the venous or arterial, nor will they uphold and sustain the weight of the body for the osseous tissue or texture. Each tissue has its own individual destination, and each organ its own peculiar office, its own specific kindness to display in preserving the natural condition of the body, as well as its own safety and existence. By this constructive and well balanced action, they very manifestly show that there is an exact and elegant adaptation of each part to the whole, and an aptitude of this whole only equaled by the number and efficacy of its powers.

The consideration and understanding of these things is as interesting as it is useful, and it as useful as health itself.

Whilst I cannot boast of the same advantages of post mortem examinations that were enjoyed by a recent author, immediately antecedent to the composition or publication of his book,* I will not so vauntingly nor so confidently attempt to disparage every effort hitherto made, or every paper heretofore published on the all important and natural condition of man. I mean the sound and healthy condition. Confessedly, however, it is true, that when each organ of the body and each tissue of each organ is doing its correct and physiological duty, is engaged in affording its own share of these specific kindnesses, the condition is natural; the condition that gives vigour to our bodies and buoyancy to our minds. We are well. We are in the enjoyment of health, a happiness which Mr. Abernethy thinks no citizen of London for many years past, could have said with truth, that he possessed.

* Smith on Fever.

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Tennessee is situated in North latitude from 35 to 36 deg. 40 minutes, and in Longitude, West, from Washington City from 4 deg. 12 minutes to 13 deg. 14 minutes, and within one mile of the centre of Rutherford is the reputed centre of the State. The county had, at the late census, 26,133 inhabitants. Some of them are natives of this county, or the State in which they reside. Many of them are emigrants, not only from all the States of the Union, but also from transatlantick shores. Raised and acclimated as we have been under the fashions of so many and such different States, Governments and Provinces, each has still adhering to him, not only his artificial peculiarities in a great degree, but also many constitutional idiosyncrasies. His own provincial capacity to resist disease, or his own aptitude to be overcome and prostrated. We have not yet formed as a people a *decided* character, either in habit or constitution. In these respects all is mixed, all is chaos and incertitude.

During the first years of our settlement it was the duty of all to penetrate the forest, to fell the tree and cultivate the ground, and fortunate for many would it be, if necessity compelled them now to the same healthful avocations. Having however prepared for themselves, or having had prepared by the frugal industry of others a competency, but too many have become idle loungers, and idleness with all its dire concomitants presents a frightful scene to the physician who wishes to aid nature in speedily expelling diseases.

I have mentioned these circumstances because to be apprized of them, before a complete pathological examination is made, will often facilitate us greatly in forming a correct opinion or a good prognosis of the disorder.

Rutherford County which has been the principal theatre of my professional actions is in medium length from 45 to 55 miles, and in width from 20 to 25 miles, and is a fine rich, level well timbered valley, surrounded, almost, by boundaries of elevated ridges or small mountains which we vernacularly call *knobs*.

Though there are in it some eminences as well as some

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badly timbered tracts, still the general face of the country is such as I have described. The black rich soil, of ternary formation, produces under cultivation, in great abundance, Indian corn, cotton, wheat, oats, rye, barley, tobacco, potatoes, and when not destroyed by late frosts, fruits of all kinds adapted to its degree of latitude. Except that it is rather scantily supplied with water, either for house use or machinery; that there are no salt works in it, and that we must depend on the neighboring countries for minerals, (having none of these last within its boundaries) it has within itself and will yield to the industrious labourer every thing necessary for his independent and comfortable subsistence. Needing as it does to make it perfectly independent, salt, mines and a good supply of water, it is nevertheless well settled and highly improved. Many large cotton farms are thickly set in it, the whole yielding annually more than ten thousand bales of cotton, weighing on an average four hundred pounds, making the great aggregate of four millions of pounds of exported cotton, besides supplying enough for home consumption.

The inhabitants of the county are rapidly increasing in the means of comfort, hospitality and independence, as well as in a disposition to mental improvement and intellectual cultivation, and if idleness is (as certainly is true) in some instances the barier to virtue, health and enjoyment, yet as a general remark it is true that vice, misery and wretchedness, the frequent attendants on abject poverty, are rapidly declining—and so are distilleries. Our prospects for still greater happiness, wealth and literature are auspicious.

The reverse of the picture must, however, be presented too. As a check to the full enjoyment of the Hyblean sweets of which we are possessed, at a time when it seems to be most needed, to-wit, in Summer and Autumn, we often suffer as if parched for a drink of cold and refreshing water. And when we suffer so intensely as we do for this luxury, this necessary of life, our attachment for the soil, though it produces succulent vegetables in luxuriant abundance, is much diminished. If our springs and mill-streams were always

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fresh, and always supplied us with a sufficiency of water, for house use and machinery, and if the animal decomposition of these vegetables did not so poison the air with effluvia we might enjoy ourselves quietly "until contemplation had her fill."

In the wet season, our streams are numerous, rapid in their currents and tortuous in their courses. Their banks are singular in this. It is difficult to find them equally high on both sides at the same place. Where there is a steep bluff or a high bank on one side, there is generally a low flat one opposing it which in high water is more or less inundated. Inundations, are however, neither extensive, frequent nor lasting enough to produce any material effect on health, or in causing complaints. If they have had these tendencies, I have never discovered them to arise from these causes. The inhabitants who reside near to the rivers on the low-bank-side are not more sickly in the summer and autumn after a wet winter, than when they follow a winter, during which these flat places are not covered with water. Those who live on this bank are more sickly during the same years than are they who reside on the bluff side of the streams.

I have remarked that if (in addition to our want of water) the annual decomposition of vegetables did not so poison the air with marsh miasmata, giving rise to our vernal, solstitial and autumnal diseases, we might enjoy ourselves quietly, "till contemplation had her fill;" and as the chief object of this paper is to contain a record of facts and not of opinions or theories, I shall forbear here to engage in any hypothetical disquisition, in proof of the effect and agency of marsh poison or vegetable decomposition. Facts prove that such causes elsewhere do produce such effects, and such no doubt is the case with us.

Vegetable decomposition is best effected during the presence of warmth and moisture, and wherever heat, moisture and rotting vegetable matter are acting at the same time, there, if there are inhabitants, will be seen and felt some form of bilious disease. In conformation of this proposition,

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many evidences may be found in the Pathology and Theraputics of Profcssor Cooke, as well as elsewhere; but the most explicit and satisfactory testimony that I have yet seen is in Cleghorn's treatise on the diseases of Minorca. The lofty amplitude of Cleghorn's mind was conspicuously evinced in that little work. It is so precise, and yet so comprehensive in relation to cause and effect, that it will remain like the writings of Sydenham, a monument of usefulness to man founded on observation and nature, when the fine theories, pretty declamations and fancy productions of his and our contemporaries will vanish into air.

But to return to our water courses. Except a few and a very few spring branches and one river, there is not of all the creeks and other tributaries to the river, a single stream that does not stop running for many weeks, and sometimes months of the year. Whilst all the other channels, and they are numerous, contain a catenation of ponds green, loathsome and disgusting to the sight, and offensively fœtid to the smell, this main east fork of the great river of the county, is in many places so narrow that an active man may leap across it "dry shod."

About seventeen creeks, forks and prongs of the river, unite to constitute the main river which runs in a North West course through the county. These branches and creeks arise from almost every point, and run in as many directions to the main channel. Across them are perhaps thirty five or forty mill-dams, besides many other obstructions, made for cotton gins and fish traps. The ponds made by these dams are longer in their evaporating, than where there are no such obstructions. Near them when the summer and fall are unusually dry, as it was last year, there has been more sickness than in any neighborhood in the county, except where the farmers have made watering ponds about their plantations for the accommodation of their stock. Indeed wherever there was last year (1830) much sickness it was invariably in the immediate vicinity of ponds or water courses which contained less water than was commonly the case with them;

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and by this increased evaporation, there was left exposed to the warmth of the sun, beds of vegetable matter, not hitherto similarly situated. In a year of common warmth and rains, the sickly places of last year, were not less healthful than other neighborhoods.

In the yer 1826, there fell much rain, the weather was generally warm, but not hot, vegetation abundant, and sickness almost universal in July, August and the three succeeding months.

In 1830, there was but little rain, the thermometer for a long time evinced a degree of heat altogether unprecedented here, vegetation did not putrefy, but was scorched and burnt up, and disease was, in many places unknown for miles around. The three intermediate years were not remarkable for either heat, humidity or sickness.

During the last winter, we had more snow falls, and more protracted and intensely cold weather, than I have experienced in this state for twenty five years, and whilst an epidemic influenza prevailed extensively, there were also many cases of pleurisy and rheumatism.

In some instances, whole families are beginning to be attacked with a dangerous grade of fever, tending to the low or typhoid condition, and at the same time the neighbors are well. No water course can be suspected for causing this misfortune. If, however, close examination be made into the affairs of the house and yard, the true cause will generally be ascertained. The settlers of the county erected log buildings, often put the foundation or bottom logs on or near to the ground, chips, shavings &c. were left under the floors, and so confined are they, that they are seldom visited by wind. The sleepers upon which the flooring planks are laid, are close to the ground, the sap, and bark of the foundation logs, sills and sleepers are, after the lapse of so many years beginning to rot and decompose.

Perhaps in such cases a decaying tree, a pile of rotting wood, or some bank of damaged vegetables, cabbages, potatoes or turnips may be found in the yard, which will be quite suffi-

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cient without the aid of the improper plan of building, to produce this isolated attack of disease. Wherever this is the case much suffering might be avoided, and great expense saved, by raising the buildings, both the dwelling houses and kitchens some distance above the ground, removing all vegetable substances that are in a decaying state from beneath the floor, and out of the neighborhood of the yard, and leaving a free space for ventilation under the houses.

In addition to these causes of disease which should constantly obtain the attention of the physicians, another is also worthy of consideration. I allude to the dietetick habits of the people. We in Rutherford county generally eat as if for a wager against time; swallowing our food mashed, but not masticated, and of course scantily supplied saliva. Instead of applying this useful adjuvant in digestion to its proper and natural uses, it is spit up with tobacco juice, and the food in the stomach must find its way to the coats of that viscous floating in strong hot coffee. Add to this the uniformity of dress worn by the inhabitants, (seldom changing for a change of temperature) the almost entire nudity of some of the fashionable belles, and little negroes of the distant negro quarters, and the ceaseless and wonderful versatility of our climate, and we have what might be thought sufficient causes for engendering and developing diseases of every grade and type —and such indeed is too true for our happiness.

Now that I have enumerated most of those causes producing disease, I shall proceed first to the consideration of such as attack children, secondly to those that attack adults, and lastly to those that prey upon all ages.

In the first division I will consider of Bex convulsiva, Empresma Parotitis, and Exanthema Rubeola of Dr Good, or whooping-cough, mumps and measles. Caused as they all are by the same atmospherick peculiarity that causes them elsewhere, they come on in their attack and progress about as the books describe them, and they run their courses without being shortened, by any thing, or any plan of treatment of which I have any knowledge. The violence of the symptoms may

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if it is true, be controled and their severity mitigated, when they require it, by a correct discipline.

I have treated them all alike, by bleeding freely at the beginning and subsequently by giving such doses of tart. emet. as will at the first vomit freely, and afterwards keep the skin and alimentary canal sufficiently active. When the skin acts freely and regularly and the bowels are kept free, by this remedy, the cough is less troublesome, the swelling is not so painful nor is the eruption so distressing as they are under other circumstances.

It is so constantly the case that the disordered state attributed to worms is dependent on some other cause, that genuine worm fever is seldom to be combatted. They do sometimes however really become the source of disease, and protract convalescence as well as aggravate a paroxysm of disease in our infant population; but when they produce fever it requires no treatment differing from fever of the same intensity arising from any other cause.

When there are Epizootick worms requiring attention, if there is difficulty in purging the patient, I attribute this circumstance to an increased collection of mucus in the primaviæ and believing as I do that the terebinthinate balsamick remedies have a specifically good influence on the mucous membrane, I usually advise some of them, say the spts turp. in doses apparently large for the age of the patient. It will not only correct this increased secretion, but act as a vermifuge equal to any other remedy I have under such circumstances used.

If I suppose no mucus in the bowels but what should be there, that is if the sufferer is easily purged, I direct to be given either the pink root, decoction flowers sulph., seeds or oil of chenopodium anthelminticum,* and last, though not least, a strong watery solution of sulph. ferri.

Croup is not of frequent occurrence here. The cases

* Doctor Armstrong has in his book on Puerperal fever, suggested the idea that Bals. copaiv. might act kindly in croup. I have never tried it because perhaps I have succeeded without it, but from what this remedy has done in disease of the mucous tissue in my hands, I can but coincide with the Doctor in the belief that it might be highly useful in this violent disorder.

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which I have treated were relieved by V. S. emeticks and purgatives when there was febrile excitement. When depression was present I have stimulated with senega polygala, used the warm bath, and had the thorax well rubbed with flannel saturated with warm spirits of Turpentine, which last remedy I am sure has often done good in my hands.

When the skin is still dry, the respiration difficult, and the mucus is removed from the stomach and bowels, opiates will often do service, and in such cases I give freely of Dover's powders. One thing is certain, that more medicine is required to act on a child in this disease than in any other which I have encountered; and it is equally true that no disease requires such close and unremitted attention, or from its frequent changes demands such a diversity of treatment. I have seen but two children die with it, and I saw them both in consultation with the family physician.

Cholera Infantum is of much more frequent occurrence than the croup. An attentive mother or nurse will discover signs of indisposition several days before the symptoms are so developed as to be entitled to a name. Then it is brought out by the reception into the stomach of some improper article, intended as nourishment, given to the child as such because it is sick; and acting as a poison for the very same reason. This may be speedily discharged by vomiting or per anum, but the impression it made still abides and becomes aggravated in proportion to the irritating agents that may be acting from without, or taken into the stomach. This first feebleness of the child, or expressions of indisposition, I have supposed are produced by improper dressing, heat and foul air.

The children that escape, not only this but most other disorders of the season, sleep in open houses on hard beds. I have rarely seen a case of it, where the children were not compelled to sleep on feather beds, in a close, ill ventilated apartment, and hence perhaps it is that the poorer classes of freemen, and the negro population seldom nurse their children or have them sick with the complaint. Especially are they freed from the liabilities to cholera, if they have their

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cottages protected from the sun's influence by good large shade trees. In warm weather let the health or disease of the child be what it may, he should never sleep on feather beds, or with the parents.

This much I have said on cause and prevention; but when the disease is developed, if the offending or irritating matter which excited the attack has not been discharged, if the administration of warm water does not produce that effect, I add to it a few grains of Ipecac. So soon as this offending agent is removed and the irritation only remains, I direct to be used, as an enema, four ounces of water saturated with muriate of soda. If there is present depression or coldness the water should be as warm as it could be borne; if heat and fever, as cold as can be procured from a well or spring, but perfectly saturated in either case with the salt. If the vomiting is not immediately checked by this simple remedy, I mix of opium one grain and acetate of lead four grains, which when divided into four powders, should be given one after each discharge from the stomach or bowels, and the enema continued. When the stomach is thus tranquillized, I administer calomel in minute doses till the liver and bowels act naturally. If in treating this disease some prescribe large doses frequently repeated, I prefer and adopt the plan pursued by Mr. Ayre and Doct's. Dewees and Harrison. I use this quantity and in this combination:

R. Calomel 3 grains,
" Pulv. zinzik 6 grains,
Creta ppt.
Sach. alb. aa. 12 grs.

Mixed, rubbed well in a mortar and divided into twelve powders, of which give one every two hours, or more frequently if necessary, till bilious discharges succeed the waterypassages.

So soon as green or yellow discharges of a good consistence appear, I esteem the disease as only a diarrhœa, to be cured by aromaticks and astringents. If there is during the disease febrile action demanding attention, cupping or leeching the epigastrick region will be required. An infusion of

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slippery-elm bark, bene leaves or a solution of gum arabick will constitute a good medicinal drink, and afford in many cases ample nourishment in the commencement of the disease.

In this complaint I hold blisters in utter abhorrence. I am quite sure I have known three children die of the blister, that would have recovered of the cholera for which they were applied. If the skin of the belly becomes flabby and corrugated, or if that condition appears for the cure of which authors advise blisters, I prefer applying to the abdomen, or the extremities, instead of flies, a piece of flannel wet in a strong warm tincture of cloves.

If tonicks are necessary the best are quinine and fresh air, the latter obtained either by horse exercise in good weather or in a gig accompanied by the parents.

A scrupulous regard should be paid to diet. Nothing intended as food should be given to the sucking child but the milk of its mother; and to the weaned, the milk, warm and fresh from a healthy cow, is the best substitute.

Cholera Morbus varies but little in its causes, symptoms, course and cure from Cholera Infantum. If the same remedies are used, accommodating the dose to the age of the patient a cure will generally be effected.

Dyspepsia has victims to an almost endless number in some one or other of its grades. I once entertained the belief that this was a disease of atmospheric production, but now think otherwise. I readily confess however that it may be much influenced by the miasmatic condition of the air, though incline to the opinion of Dr. Johnson that it is caused by eating, drinking, and improper medicine. The three worst cases I ever saw were evidently traceable to the abuse of mercury. Two of them had such quantities of mucus lining the alimentary canal, that purging medicine would rarely act upon them. Whatever of a purgative nature was directed to the stomach was suspended in this mucus, and thus a complete barrier was interposed between the coats of the stomach and the physic. In the third case the mucous membrane was

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the sufferer also, but it was ulcerated as I infered from the purulent discharges of the bowels, the soreness of his abdomen, and the eruption of his tongue. In addition to these symptoms of disease, he had lost his strength, so that he was lifted like a child, though 25 years old, and had external piles worse than any man I ever saw. He had used at the same time, boxes of blue pills and ounces of nitro marine acid, had been blistered, advised to the sulphur springs of our county, of which we have two or three, and to the protracted use of cal. al. and rhu. pills. He complied with all, but all to no good purpose.

So soon as he became the patient of my friend Dr. Gowen, I was required to visit him. We at once opened with a lancet the extremely sensitive, and protuberant hemorrhoidal tumors and turned out from their centre clots of dark blood. We advised him to the use of nitrate of silver, gradually increasing the dose till he took three grains daily. Besides this he took thrice aday from 20 to 30 drops of balsam copaiva, bathed or sponged with hot salt and water every night, as warm as he could endure it; the action of the skin to be roused by the earnest application of the flesh brush. We suspended the use of the lunar caustic and balsam copaiva, when the purulent secretion ceased, and substituted for them the muriated tinct. iron which he continued to take freely. From being unable to sit up, he was in ten weeks by pursuing this course, so restored as to undertake and prosecute a journey from this county to his home in South Carolina. The other two cases were treated in the same way, except that they did not resort to the ferruginous preparation.

I am indebted to Doctor James Johnson for the success I have had with the use of Lunar Caustick in this disease and to Dr. Armstrong, for that of bals. copaiv. in the treatment of deranged mucous tissues. But to insure success in any plan of treatment in this most changeable disease, regard should be constantly paid to the kind, and quantity, of diet. No food should be taken, but such as will yield the most nourish-

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ment out of the least quantity, and never enough even of that to produce a moments uneasiness. A remark in relation to exercise, and I will have disposed of dyspepsia. It is useful, nay it is indispensible to the cure of this disease, but there is a proper time for taking it. Immediately after the principal meal is taken, thirty minutes undisturbed sleep is worth more than any exercise that could be engaged in. Habitual idleness is worse than fatigue, but if the energies of the system can be given up at this time to the stomach, they will be restored four fold. After this sleep, so useful to the dyspeptick, has been enjoyed, he may exercise in proportion to his ability to do so, and will be benefited by it.

Consumption takes off a full share of our citizens. I can produce nothing theoretically new, or practically important in relation to this lethiferous malady. Its causes, symptoms and termination are the same every where.

Hæmorrhages are of rare occurrence, except from the uterus. In such cases when the subject is cold or depressed, and the flux of blood from debility, I give them freely of hot toddy and some convenient aromatick infusion. If full and plethorick, I bleed freely, require a recumbent posture, with the pelvis raised rather above the centre of circulation, order cold applications to the hips, pelvis and vagina, and quiet the increased action of the heart with Dover's powders. I have arrested an hæmorrhagic tendency in three or four pregnant ladies, who had habitually miscarried of their children about the sixth or seventh month of gestation, by blistering the sacrum, and the use of pills composed of cal. rhu. and al. One blister was not relied on; a succession of small ones was applied, and so located that a fresh one might be applied every four or five days.

White swelling is a most painful disease to which all classes and all sexes are liable, and it is in Rutherford County, without exception, so far as I know, of rheumatic origin. I have witnessed several cases, but have yet to see the first one of genuine scrofulous commencement. This, the rheumatic white swelling, should be treated just as a whitlow.

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When the disease is evidently fixed, or fixing on a bone, it will expedite the cure, to cut at once through all intervening substances, to the bone, just as if it were a case of paronichia. The disease of the leg, or arm, or thigh, is the same as of the finger; the same tissue is diseased, and the same remedy will cure the case. So soon as the distension is removed or the pus evacuated, the wound should be kept open at the top so that it may heal from the bottom with a tent of slippery elm bark, a warm soft poultice kept to the surface, and fever treated in the usual way.

In connection with this disease, or this form of disease I will at once speak of rheumatism, a complaint incident to any of Shakspeare's seven ages. In acute cases free bleeding, and repeated small doses of antimonials, will relieve the inflammation, open the bowels and do much in regulating the action of the skin. A pill composed of one grain of opium and twice as much champhor, with a drop or two of anise seed oil, will have a better effect in relieving the pain after bleeding, than any other preparation I have ever advised. It will do more. The desired action of the James powder or tartar emetick is greatly aided in its approach and continuance, if this pill be only used to subdue the pain, and desisted from so soon as that object is attained, it will never effect the nervous system so much as to cloud the imagination.

When chronick, from two to four drachms of the volatile tinct guiack will often do much good, and what in some cases is perhaps better, is a tincture of pokeberries in half ounce or ounce doses given as often. But my chief reliance for the cure of chronick rheumatism is on such remedies as regulate the digestive apparatus. I begin then with a brisk emetick, and after the stomach is cleared, I give daily such doses of the vegetable extracts as will continue the bowels soluble. If the pain demands attention, when this is done I use locally a saturated alcoholick solution of corrosive sublimate rubbed on the painful part freely. No danger need be apprehended of a salivation if the bowels and

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skin be duly opened with the extracts and antimonials or pulv. Dov.

Struma Africana, or negro consumption, is neither more nor less than scrofula, attacking the most unfortunate, because the most neglected, and abused race of man. I believe that if the negroes were better clad, better fed, and when sick, better nursed, as well as compelled to greater cleanliness, the disease of negro consumption or struma africana would be soon, if not unknown, at least *very much removed* from this unfortunate people. Instead of the treatment imposed on beasts of burden, if they received kindnesses, or could be so managed as to feel an interest in the welfare, prosperity, and happiness of their owners, they would, besides rendering them equal service at the time, serve them longer, (and justice aside) could thus be turned to better account. In illustrating what might arise from this plan, I will mention the following fact.

A Mr. Burrows of Smith county had a family of negroes that were overtaken by this disease, and several of them died of it. He saw Dr. McGee when he was yet in his pupilage, and proposed to reward him well if he would cure the remainder. He was advised to move them across a mountain, contiguous to his residence, build huts or pitch tents for them, supply them with all the necessaries of life, and permit them to rove and roam at large in the neighbouring barrens, there to eat or sleep, to work or hunt; there to enjoy for a season a variety of pursuits, a change of scenery and the feelings of freemen. Mr. Burrows was a man of kindness and humanity. This suggestion met his approbation, and his practice accorded with it. He sent them across the mountains, provided them with what they wanted, visited them to learn their situation, and although some were sick of struma when moved, not one died with the disease after he put them off there. Whether this course will succeed hereafter, if adopted, remains to be tried, and unquestionably merits, since others generally fail, a degree of attention more than many might at first suppose. It is worthy of a fair trial.

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Influenza has more than once visited us. Fifteen years ago it was peculiarly severe as the inhabitants who witnessed and felt its effects well remember. It was called by the people "the cold plague." As there is no physician now living who practised in Rutherford County at that time (so far as I know) I have been unable to learn what method of treatment was successfully pursued for its cure.

During the last winter and spring the influenza prevailed rifely in this county. It commenced with sneezing, pain above the eyes and across the shoulders, soreness of the flesh all over, difficulty of swallowing, a peculiar unpleasant feeling of the fauces and throat, an oppression in the chest, to which succeeded a hard dry cough. The skin was generally cool or cold, in a few cases hot, but always dry and rough. But little fever accompanied it in any stage. A dose of ol. ricini at the beginning would discharge mucus from the bowels, and a full draught of warm sage or spicewood tea at night, with pedeluvium would produce gentle sweating with a mitigation of the symptoms.

If relief was not thus obtained, a dose of the wine of ipecac, by which vomiting was produced, followed by the use of Coxe's Hive Syrup in small quantities would invariably effect a cure, unless there was fixed and severe pain. Then V. S. was needed to ensure success.

Ophthalmia has rarely if ever visited the county epidemically, although it has in some neighbourhoods been almost universal. In June last it prevailed near Readyville in the practice of Dr. Gowen. He was himself the subject of its attack. Bleeding in large and repeated quantities, cupping, purging and cold applications did not cure him. Two emeticks and the liberal use of sulphate of quinine restored him to sight, and to the discharge of his laborious business in a very short time. Most of his neighbours who had not this painful disease, had bilious fever in some of its varieties and were cured by him upon the same plan of treatment. I have seen in other years, cases of acute sore eyes demanding an entirely different course of treatment.

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Dysentery, like opthalmia, is isolated in its extent, never extending over the county, but annually attacking the inhabitants in some part of it. It is most apt to occur on the dry channels of water courses, and generally is the precursor of a severe form of fever there. I know nothing new in its symptoms. In the treatment, it has been with me an object of much moment, first to equalize the temperature of the skin. To this end I direct that flannels dipped in hot water, be applied to the extremities, or elsewhere if the skin is colder than it should be, and at the same time, the parts that are too hot, for a natural temperature, are brought down by the cold affusion. Two grains of ipecac and half a grain of opium given every hour, will generally remove the tormina. Castor oil when it acts freely as a purgative (which it will do when the tormina is relieved by the ipecac and opium) will cause an expulsion of scybalsus matter, and a less frequent resort to the close stool. If there is febrile action to much extent, with frequent evacuations of bloody mucus, a bleeding that will produce fainting, or as Dr. Armstrong observed, "till the pulse is a mere fluttering cord beneath the finger," will afford immediate tranquillity and ease from these symptoms sooner than any thing else. If the mouth is dry, the tongue furred, the skin inactive, and accompanied with prostration, or nausea, I have directed this preparation: R. calomel 50 grains; gum camphor, 20 grains; gum opium, 10 grains; oil of anise seed, 10 minims; G. arabick, 25; the whole well rubbed together in a mortar, and divided into ten pills. One of which, should be given every three hours till four are taken; and three hours after the last has been administered, brisk doses of castor oil and spts. turpentine, one ounce of the former, and half as much of the latter should be given. If the character of the discharges is not changed by this prescription, if the tenesmus continues, warm gruel should be administered as an enema, in such quantities as to procure the benefits of distention and internal fomentation. If no advantage is still obtained, a blistering plaister may be applied over the arch of the colon, and the liver stimula-

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ted to an industrious secretion of bile, by exhibiting such doses of the emetic tartar as will produce bilious dejections and not vomiting. I have never seen any permanent advantage arise from any plan of treatment, till a discharge of scybalous matter was produced. The design then, with me has been, to remove the spasm of the bowels detaining this hardened fæces, and secondly to procure its discharge.

The fevers of Rutherford County vary with the seasons, and the atmospheric constitutions. Changes take place in the air, and influence the character of our fevers, which are beyond our ability to account for, as well as imperceptible and unknown to us, except when we see their effects. This fact is so well known to the observant of the faculty, that they do not adopt at the beginning of an epidemic, without great caution, the same plan of treatment they used successfully during the preceding season of sickness. On this subject the writings of Sydenham are invaluable. I regret that it is customary to neglect his works. They should be carefully examined by every practitioner, at the commencement of a new disease; not in truth a *new disease*, but the appearance or combination of symptoms which was not observed during the past season.

In the treatment of fevers, if the skin is hot and dry, the thirst great, and the tongue parched, the whole machinery must be let down by depletives, to the point of secretion. Blood should be drawn to meet the urgency of the symptoms, and if the copious flow of it does not at once produce perspiration, relieve the thirst and pain, this may be accomplished by nauseant doses of tart. emetic, or pulv. antimonialis; but if not thus obtained, and there is no structural derangement in the body, I advise the shower bath, to be repeated pro re nata.

If the first use of this remedy fails, a repetition of it will seldom want success in cases of simple excitement. The bleeding removes the redundant amount of "bad blood," the antimonials promote the secretions and act on the bowels, the cold bath reduces the skin to a healthy standard of tem-

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perature, so that so soon as the antimonials shall have extended their influence to this organ, there is no superfluous heat to be encountered, and the cutaneo-hepatick sympathy is displayed instanter. I have not as yet adverted to the pulse because I believe that the prevalent idea and plan are bad. As all diseases are supposed to depend on bad blood, poisoned or blackened, so the pulse is too frequently made the criterion from which the prognosis is formed, and as frequently determines the mode of treatment.

Suppose, though, the condition of the system is the reverse of this excited state, that he has a cool clammy skin, is depressed at almost every thing, has no pain, wants no "good Titineus to bring him drink," and breaths more as if he were a machine than a man; then the meth. meden. must be changed to suit his exhausted condition. The circulating department of the patient is evidently at a low ebb. He should be treated just as if he had been knocked on the head, and deprived of active sensation. He should receive warm brandy toddy saturated with sulph. quin. internally, and externally the *hot* bath. The temperature of the bath, should not be consulted with the Thermometer. Patients have complained of the low temperature of the water, when it was too hot for my hand to remain in it. I should adapt the heat of the water, to the effect to be produced, and would not be content with its influence, till the skin became red, with an evident fulness of the external veins. If a cathartic has been given as is proper when these symptoms arise from indirect debility, it acts kindly so soon as the hot water has had its effect. If none has been administered, the course pursued has raised the vital powers, so that the giving of a few grains of calomel and camphor, or these two, and as much James' powder, will generally restore the ogans to their natural duty.

But if, as is often the fact, the system is unequally excited, if one part of the machinery is stimulated above the secreting point, and another depressed below it, the case requires a more diversified mode of treatment.

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The superior part of the body may be hot, intensely hot, whilst the lower extremeties are cold and almost bloodless, then the shower bath or cold sponging may be applied to the head, trunk and heated parts, and at the same time, the hot bath directed to the cooler ones, so as to produce the redness of the skin and fulness of the veins already adverted to. But before resorting to this process, the patient should take a cathartic, five grains calomel, five grains aloes or scammony, and one half grain or a grain of tartar emetic. Three hours after it is taken, if the bowels do not act, and there is generally costiveness in such cases, he may take minute doses of tartar emetic, so exhibited as to procure discharges. It is always desirable that the purgative should be administered at such a time as that it will act when the fever is highest.

When the excitement is equalized, if the condition requires it, the whole system, all the organs, must be let down by copious bleeding, till they are reduced to the point of secretion, at which time the administration of some purgative medicine should be attended to, if that already given has not acted. The castor oil, or senna may be used, or, what in an irritable stomach is better, the Seidlitz powders.

It is proper to continue an open condition of the bowels, by producing daily two or three passages, to effect which, during the apyrexia, I have advised aloes, rhubarb, jalap, scammony or calomel, in such doses as may be required. I sometimes give one of these remedies alone, but more frequently use them in combination; seldom, however, do I give as much as ten grains of calomel, and prefer much smaller doses. It is to be regreted that the abuse of this most powerful and valuable drug is fast sinking it to a state of disrepute, from which it will with difficulty recover. Administered in proper doses, and in proper cases, it is an invaluable remedy; but given indiscriminately, as I have known it, it is unquestionably and perceptibly pernicious.

During the day or night, if there is much fever, the bed room should be kept open, well ventilated, and antimonial solutions or Carpenters citrated kali, freely and liberally pre-

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scribed. As a good night will generally bring about a good day, it is always desirable both to the sick and his physician, that he should sleep at the proper hours. The Dover powders will frequently procure this desideratum, if however, it does not, one of the following pills should be given at bed time: R. gum camphor, 9 grs. soft opium and James' powder, each 3 grs., and three minims anise oil, well rubbed together, and divided into three pills. When disagreeable vomiting arises in the first stages of the fever, they are often subdued by free bleeding; when in the latter stages, two grs. acet. lead, and one of opium in a soft pill, if taken, will have the desired effect.

When the divided excitement returns, a resort to the plan already suggested will again equalize it. When the system is too highly stimulated in the progress of the disease, or if it is too low, cold and lifeless almost, a repetition of the course advised for these conditions, will have an useful tendency in their second or third application, as certainly as they did in the first.

If there is a cough during convalescence, Coxe's hive syrup will act kindly in removing it, and will also contribute much to keep up a pleasant action of the skin and bowels. If though, this remedy will not do all we expect or wish it to do, if the secretions are sufficiently copious, but not of the proper kind, the extract of white walnut, with calomel, or rhubarb, or scammony, may be used. In some cases, when I could not alter these secretions by any other plan, I have regardless of fever, given in combination with these purgatives, equally mixed, the sulphate of quinine, with a happy effect. My usual dose in such cases is five to eight grains of calomel, extract walnut and sul. quin, repeated *por re nata.*

Doctors Perrine and Cartwright of Mississippi, and my friend Dr. Watkins of Rutherford County, have used it* in many such cases, and combinations, and witnessed results decidedly satisfactory.

When by soreness or pain, we are informed of local disease,

* The Sulphate Quinine.

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after the inflammatory tendency is subdued, and the system duly prepared for such application, blisters are happily beneficial. Sinapism to the feet will often prevent coldness of the extremeties, and ward off the divided excitement.

The intermittent form of fever is but the alternate presence and absence of the first and second conditions described, incerted in their order of attack from the position in which for convenience, I have placed them. For its cure, it requires the remedies advised for them, adapted to their different stages. Knowing, as we usually can, about the time that the nervous or cold stage will come on, it may frequently be prevented by the sulphate of quinine alone, or this with the piperine, or both with the purgatives above named, provided they are given so as to produce their stimulant effect, before or at the time of the chill, and their cathartic effect, during the subsequent pyrexia if any should occur. But if there is no chill, no fever will follow the exhibition of these remedies, when given for the cure of intermittent fever.

Before the use of sulphate of quinine was known, I relieved an old toper of ague and fever, by giving him half an ounce of spirits turpentine, half an hour before the chill was expected, and repeating the dose every thirty minutes, till he took an ounce and a half. He yawned, stretched himself, slept, and awoke bathed in sweat, and was never afterwards sick. I had used all other remedies, of which I then had any knowledge, before I resorted to this one, but all to no effect.

The occasion, for which this paper was prepared, will account to the reader for certain modes of expression that occur in it, and the nature of it will excuse the writer, for having been thus concise on many subjects. Had he indulged in his own wishes, he would in many cases have extended his remarks satisfactorily to himself and possibly to those who may read this essay. Being however compelled from the nature of the duty required of him, to bring in review all the subjects contained in it, it became necessary that he should not be diffuse on any, least some might be entirely omitted.

And indeed, after his best exertions to produce such a pa-

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per as was expected, the writer has found it impossible, in the compass of so few pages, to notice many things, which to have rendered to them due and proper attention would rather have required a volume, than a simple essay.

ART. II.—*Thoughts on the Causes of Disease, more especially the Predisposing cause; with practical remarks.* By CHARLES CALDWELL M. D.

IN every pathological and practical work in medicine, much is said about the CAUSES of disease; and yet I know of none, in which the subject appears to me to be treated in a spirit of sound philosophy, and with suitable method. There is a want of definiteness in the views of the writers, too often accompanied by a looseness of expression, which renders their productions unsatisfactory, and less instructive than they would be, did they contain the same matter under an improved form. Nor is this the worst that might be said, without either incorrectness, or undue censure. If I mistake not myself, others frequently do, in their statement and classification of causes. They even confound them, or rather identify them with each other; as if one class could assume the character, and perform the part of another. It is for these reasons that I have chosen them as the subject of a few remarks. It is not my present intention, however, whatever I may attempt at some future time, to write a formal and elaborate dissertation on them. Other occupations forbid this. I shall merely submit, in the plainest and simplest manner, such thoughts as have occurred to me, on the subject, leaving the reader to judge of them for himself, without troubling him with all the reasons, why I entertain them.

The causes of disease are divided into remote, predispos-

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ing, occasional or exciting, and proximate; and, in their operation, they succeed each other in the order, in which they are here recited. Two of them, moreover, stand related to the other two, as *their* immediate causes. The remote cause produces directly the predisposing, and the occasional the proximate. To illustrate my meaning by a familiar example.

The remote cause of bilious fever is malaria. That produces, by its action on the system, a predisposition to the disease, which constitutes the predisposing cause. The exciting cause, acting on the body thus predisposed, produces the proximate cause, which, in the estimation of many, is the complaint itself.

Is the predisposition hereditary, as to gout, insanity, or pulmonary consumption? The remote cause is a similar predisposition in ancestors. The exciting cause is the same as in other diseases; and the proximate cause is the local affection which immediately produces the complaint. I have said "*local*," because every complaint has such an affection, in which it consists; and the removal of which effects the cure. A disease of the whole system can no more exist without a topical affection, than a stream can flow without a fountain, or a tree stand upright and flourish without a root.

The individual causes belonging to two of the classes are specific. I allude to the remote and predisposing. Exciting causes are in common; the same, I mean, in all complaints; and proximate ones are much less specific than those of the two first mentioned classes. The same kind of topical affection gives rise to different forms of disease, by being situated in different tissues and different organs. For example; inflammation in a serous and a mucous membrane makes different complaints; an inflammatory affection seated in the liver produces hepatitis; in the lungs, peripneumony; in the joints, rheumatism; and in the brain or its membranes, phrenitis.

Measures for the prevention of disease are founded on a knowledge of its remote, predisposing, and exciting causes. Means of cure are instituted on an acquaintance with its proximate cause, a knowledge of which is attained, in part,

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from symptoms, but more certainly by *post mortem* inspection. The physician who attempts to treat a complaint, while ignorant of its proximate cause, plays the empiric. And crowned-heads, legislators, and councils and boards of health, who attempt to guard against complaints, while ignorant of their remote, predisposing, and exciting causes, play the fool, and do incalculable mischief. Instances of the former we have, in the daily practice of all uneducated physicians; and of the latter, in the efforts now making, by the governments of every European nation, to arrest the progress of cholera morbus. Is the remote cause of a complaint a contagion or morbific secreted poison, as in small-pox, and lues venerea? It may be insulated, and prevented from spreading. Is it a deleterious matter, produced by unknown physical causes, and diffused generally through the atmosphere, as in Influenza, and the Cholera of the East? All attempts, by man, to arrest its march, are futile. When the peculiar physical processes productive of its remote cause cease to go on, it will cease to exist; not before. Hence the deep responsibility, under which physicians neglect to study the causes of disease.

I have said that remote causes of disease are specific. My meaning here will be understood to be, that every remote cause produces a corresponding and peculiar predisposition, and no other. One kind of malaria produces a predisposition to intermitting and remitting fever, and to nothing else.* Another kind produces a predisposition to yellow fever; and a third kind, a predisposition to typhus fever. These forms of complaint belong, in strict classification, to endemics. As regards epidemics, one sort of poison diffused through the atmosphere, from unknown sources, gives rise to a predisposition to influenza, and to nothing else; another sort, to scarlatina, and nothing else; and a third sort, to cholera morbus, and nothing else.

It is often asked, is each class of causes alike necessary to the production of every form of disease? and the question is usually answered in the negative. Some complaints are said

*Even when intermitting fever assumes a masked form, it is the same disease. It still intermits or remits, as it does under its regular form.

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to be producible, without the influence of exciting causes. Without contending that this is positively a mistake, I say that it wants proof. No instance can be cited, of the production of a disease, where an exciting cause may not have existed and acted. Small-pox is usually referred to, as being brought on by the influence of the contagion or remote cause alone, without the cooperation of an exciting cause. This allegation, I repeat, is without proof. It is not necessary that every exciting cause of disease should consist in unusual exposure or fatigue, or inordinate eating, drinking, want of sleep, or working of the passions. It depends on the condition of the system, whether a given cause may or may not excite disease. I should rather say, that it depends on the relation, which the cause bears to the system, for the time being. Is the system free from predisposition? A powerful exciting cause does not materially injure it. Is it under a slight predisposition? A strong cause is necessary to produce actual disease. Is it very strongly predisposed? The slightest cause—one of which the patient is unconscious, and which, under different circumstances, would be not only harmless but salutary, will excite the complaint. To recur again to example.

An individual, in sound health, often eats a number of crude and indigestible articles, without being perceptibly injured by them. Becoming afterwards slightly predisposed to some disease, the use of the same articles will occasion it, although his usual food will not. But let the predisposition be *sufficiently strengthened*, and one of his common meals will, and often does excite the complaint. In the latter instance the disease is believed to come on, without an exciting cause, in as much as nothing unusual has been eaten, done, or suffered. But this belief arises from a want of pathological knowledge, or a forgetfulness of it. It ought to be known and borne in mind, that there is as much want of fitness and harmony between a common meal and a strongly predisposed system, as there is between a meal of indigestible food, and a system very slightly predisposed. What phy-

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sician has not seen cholera morbus, diarrhœa, colic, or some other form of disease, (at times even convulsions) brought on by a dish of coffee with a little bread and butter, a plate of soup, or a single apple? In these cases, the food, innocent and salutary at other times, is the exciting cause. Wherefore does it prove so? On account of the strong existing predisposition. In consequence of this, there is a want of harmony between the food and the system. The former has become virtually a *poison*, not from any change in itself, but in the latter. The fitness between them may be as essentially destroyed, by an alteration in the one, as in the other.

Let these views, the soundness of which pathology warrants, be applied to small-pox. The poison of that complaint, being received into the system, produces a strong predisposition, which a meal of common food, or an impression made by some other cause, equally innocent under ordinary circumstances, excites into disease. Without asserting that any positive evidence can be adduced to substantiate this view of the subject, I know of none that can be brought against it. That some poisons produce fever of themselves, without any aid from other causes, is true. This is the case with arsenic, corrosive sublimate, and a few others. But these articles give rise to fever almost immediately, in consequence of their sudden and violent irritation. They act on the same principles with a burn, a gun-shot wound, or any other severe mechanical injury. It is poisons, which require some time to mature their operation, that seem to need the aid of an exciting cause, to enable them to produce fever. When time is thus allowed it, the preservative power of the system rises in action against the deleterious agent, and resists it successfully, unless its energies are diverted and weakened, by an exciting cause, which stands in the attitude of another deleterious agent. I shall only add, that whether the poison of small-pox requires the aid of an exciting cause, in the production of fever, or not, most other febrile poisons certainly do. This truth may be exemplified in the poison of bilious fever. An individual, who carefully avoids

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exciting causes, may be exposed to that agent, for months, and escape disease. If a person, cannot secure himself from small-pox, by the same precaution, it may be because he cannot avail himself of it to the requisite extent. He *must* eat and drink and exercise; and, I repeat, that a degree of excitement, not only harmless, but salutary under ordinary circumstances, may, under strong predisposition, occasion disease. Witness the effect of moderate excitement, in cases of convalescence. A brief conversation, or any other form of mental exertion, a meal far below the common standard, or a walk across a bedchamber, often produces relapse and death. Why?—Because the predisposition is not entirely removed. If it were, the exciting cause would be as readily productive of some other form of disease, as of that just recovered from. One remark further, which is of no small moment, in a practical point of view. Whether small-pox actually requires an exciting cause to produce it or not; a strong exciting one always makes it worse. My meaning is, that, in a person predisposed to that disease, a powerful exciting cause renders the attack much more severe than it would have been, without such excitement. This is true of every complaint. When a physician, therefore, is called to a case of disease, brought on by long and severe exposure, exhausting fatigue, or a deep debauch, let him look for a violent attack, and act accordingly.

Another question has been agitated. Can the remote ever prove the exciting cause of disease? Yes; under a certain view of the subject, it may. Years of luxurious eating and drinking, accompanied by habits of indolence, may become the remote cause of gout. In other words, such a course of life often gives rise to a gouty predisposition. Under these circumstances, a debauch at table often excites a paroxysm of the disease. There is no reason, however, to believe, as is often alleged, that the same malaria, which is the remote cause of bilious fever, ever acts as the exciting cause. Nor do the atmospherical poisons (for such I believe them to be)

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which are the remote causes of typhus, scarlatina, influenza, and measles, ever excite those complaints into action.

It has been already stated, that correct measures for preventing disease are founded on a knowledge of its remote, predisposing, and exciting causes. As prevention is of great moment, a few further remarks on this subject may prove useful.

Is the disease to be guarded against an *endemic*, as bilious fever? The most effectual means to escape it is to fly from it, and remain beyond the reach of its remote cause, until it shall have ceased to exist. In cases where this cannot be done, the next best step is, to avoid exciting causes. This end is obtained by observing "temperance in all things"—in eating, drinking, sleeping, waking, exercise, exposure, study, and the indulgence of the passions. The condition of the bowels should be also carefully regulated.

Is the complaint epidemic?—Its spread may be so wide, and its prevalence so general, that to fly from it is impossible. Its remote cause, like that of influenza, and the cholera of the east, is every where. In such a case, the only precaution that can be taken, is, to shun exciting causes. These being the same in all complaints, I need not again recite them. In a particular manner, let all *violent* excitement be avoided; and, should the complaint make an attack, it will, by such caution, be more likely to be rendered a moderate one.

As relates to prevention, the predisposing cause is of peculiar interest and importance. Yet if I am not mistaken, it is less understood, and less attended to, than either of the others. There is no reason (at least I have none) to believe, that any very definite ideas of it are entertained, either by medical writers, or physicians who talk about it. It is often confounded with states of the system, to which it has no affinity. Thus, we are told, by the physicians of Europe, and those of the United States are learning to repeat the assertion, that the meager fare, foul and confined apartments, and dissipated habits of the poor, *predispose* them to the prevailing cholera. This is a mistake. The causes enumerated

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do not, in the true meaning of the term, *predispose* to cholera, any more than to other diseases. They merely create a greater liability to it, by weakening the vital and preservative power of the system; that power which resists the action of the remote cause, and endeavours to prevent it from producing a predisposition. As respects pestilence, and every other form of malignant fever, the same is true. The poor are most liable to them. Why?—Because they have a real predisposition to them?—By no means; but because, from the shattered condition of their systems, their preservative powers are enfeebled, and unable to resist the remote causes. To illustrate this subject.

Predisposition is a condition of one or more organs of the system, which gives a proneness to one peculiar form of disease, and to no other. It has even a strong tendency to prevent other forms, if it does not actually do so. Thus, in a person predisposed to bilious or yellow fever, no other kind can be produced. An exciting cause, of any description, acting on the body, will generate the complaint, to which the individual is inclined, and no other. Even a gun-shot wound, or any other severe mechanical injury will do this. I have seen bilious, yellow, and typhus fever, and even scarlatina, excited by such accidents. Predisposition, then, determines absolutely the form of the disease; and nothing is required but an exciting cause, to bring it into existence. The predisposition, moreover, is the product, not of any given mode of life, or kind of diet, but of a corresponding remote cause. This is as certain, as any other truth in pathology. The laws of causation justify me in asserting, that it cannot possibly be otherwise. A specific effect can arise only from a specific cause, not a general one. And, as already stated, predisposition is specific. To apply these views to the point under consideration.

We are told, I repeat, that bad fare, a want of cleanliness, and debauched habits *predispose* the poor of Europe to cholera morbus. Nothing then is necessary, but an exciting cause, to produce the disease. Is this true? Will severe fatigue,

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exposure to inclement weather, a paroxysm of passion, or a fit of intoxication give rise to cholera, among the poor; in every part of Great Britain, Germany, or Poland? No, it will not. The reason is plain. The predisposition does not exist in every part. It exists only where the poison or remote cause of the complaint has possession of the atmosphere. That poison alone can generate a real predisposition to the disease. Poor living and intemperance only facilitate its work. The same would be true of the common plague, were it prevalent in Europe. The poor and intemperate would be chiefly its victims. Not because they have a predisposition to it. That can be produced only by its peculiar poison. But because their vital and preservative powers are weak, and unable to resist that poison. The abdominal viscera, moreover, constitute the seat of plague and cholera morbus. They are also the organs most debilitated and otherwise injured by unwholesome food and excessive drinking. This constitutes another reason, why those two diseases attack most readily the needy and intemperate. It does not however constitute a predisposition, in the true interpreta- of the term. It only paves the way for its ready production, by the remote cause of the disease, without whose influence it could no more exist, than vegetation can without warmth or moisture.

Shall I be told that these remarks are made in a spirit of hyper-criticism? I reply, that they are not. In speaking on the subject, to which I have referred, physicians mean what they say. They identify things that are different, which is always productive of confusion. They do not distinguish between *specific predisposition*, and *common debility*. Hence they not only make mistakes themselves, but mislead the public, and perpetuate professional error. When they use technical terms, they should be careful to attach to them their appropriate ideas. But this they can never do, without an accurate knowledge of the subject of them. Incorrect expressions are the offspring of incorrect views. Worse still; from the latter proceed also incorrect practice. Every

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error is productive of mischief in some form. To correct it, therefore, is to prepare the way for ultimate good.

Hereditary predisposition to disease is a subject, which I have not seen treated in a manner corresponding to its interests and importance. It consists in a condition, derived from ancestors, of one or more organs, or portions of the system, so far inclining them to some given form of disease, that nothing but an exciting cause is requisite to produce it. It is inherited, pursuant to that law of our nature, which amounts to a decree, that all constitutional qualities are communicable from progenitors to posterity. It depends on a likeness of *internal* and minute organization and endowment, between parents and their offspring. And such likeness is as regularly and certainly transmitted, as that of complexion, features, or personal figure. The unsound condition referred to (for it is "unsound") may be in various organs; in the brain, predisposing to madness; in the lungs, to asthma, or pulmonary consumption; in the stomach and other chylopoetic organs, to gout or dyspepsia; or in the lymphatic system, to scrophula. Wherever it may be, its seat and character must be accurately known, else no judicious prophylactic measures can be instituted, to prevent it from passing into actual disease. And, when I observed, at the commencement of this paragraph, that I had never seen it satisfactorily treated of, my allusion was, in part, to a defective examination of its seat and character. Predisposition is too often, if not always, viewed and spoken of, as something belonging to the entire system, instead of being confined to a given portion of it. Like what is called "idiopathic fever," it is looked at, as an unsoundness of the whole body, *sine ullo morbo locali*—without any *local* unsoundness. Consistently with such a view of it, no effectual preventive means can be applied. The reason is obvious. There is nothing under notice, to be definitely aimed at, by them. The enemy is not seen, and therefore not likely to be injured, because the contest is carried on in the dark. But when the predisposition is believed to be situated (as is really the case) in a

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given organ; and when that and its condition are known; then there is an end in view, which may be attained by the requisite preventive means. And such means, the enlightened and skilful practitioner will be prepared to devise. To speak more definitely and practically on this subject.

A father, who has derived, from his ancestors, a predisposition to madness, transmits the same to his son, by giving him a form and organization of brain, and a temperament, similar to his own. It appears, from the character of the boy's intellect, that his brain is highly irritable, if not throughout, at least in certain portions of it. How is the predisposition to be removed or moderated, and madness prevented? or is such an issue attainable? These are grave and important questions, and ought not to be answered without due reflection. The latter however may be briefly answered affirmatively.

That physical education, commenced early, judiciously conducted, and steadily persevered in, can be made to do much, in modifying the constitution and character of the body, is not to be doubted. It can strengthen organs that are weak, weaken comparatively and moderate those that are too vigorous and active, and thus establish a salutary balance between the several parts of the system. And this is all that is necessary to eradicate a predisposition to madness, and prevent the disease. Nor is it difficult for a physiologist to devise the mode of education, calculated to attain the end in view. It consists chiefly in plain and simple but nutritious diet, taken in moderation, a strict rejection of stimulating drinks, cleanliness and a healthy temperature of the skin, a regular condition of the bowels, the prevention of paroxysms of passion, an avoidance of unnecessary exposure to inclemencies of the weather, and a greater amount of corporeal, than of mental exercise. The exercise to be taken in the open air. Such a course will withdraw from the brain its accumulated and excessive irritability, and diffuse it through other organs, where it will be less dangerous. It will change the cerebral into somewhat of the muscular temperament. A boy predisposed to madness should never pursue a sedentary, much less a

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studious life. Let him not aim to become a professional or literary character. Nor ought he to be inactive. To pass his time in indolence is fraught with danger. Whatever may be his wealth or condition, he had better cultivate the earth, with his own hands, or engage in some active mechanical employment, than live in idleness.

Is the predisposition to pulmonary consumption or asthma? The preventive measures should be nearly the same. In a particular manner, let the individual devote himself to some occupation, or line of life, that will allow him free air, keep his body erect, or at least unbent, while he is actively engaged in it, and give sufficient exercise to his arms, shoulders, and chest. To employ the lungs in occasional singing, reading aloud, and declamation, will strengthen them, and thus prove useful. Parish clerks and ballad singers are rarely subject to pulmonary consumption.

For the removal of a hereditary predisposition to gout, dyspepsia, scrophula, rheumatism, or epilepsy, I have nothing further of importance to suggest. The same means serve for the prevention of these, as for that of the other complaints just spoken of. The immediate object in view is to strengthen the system, and equalize the irritability and excitement of its different organs. Nothing else is necessary to constitutional soundness. And, as already observed, it is best and most certainly attained, in every case and condition, by temperance, cleanliness, suitable clothing, exercise in the open air, and regularity in all things. To preserve the skin in a healthy and active condition is of much more importance, than it is generally supposed to be. It maintains a state of centrifugal action. But, whatever does that is necessarily useful, the tendency of hereditary predisposition being to produce and sustain centripetal action. Hence the benefit often derived from a sea-voyage, and a change of residence from a cold, to a warmer climate. It is for the same reason, that the warm bath, judiciously employed, is highly salutary.

I pretend not to predict what mankind *will* do hereafter, on the subject, of which I have been treating; but that they

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may do much for their own benefit cannot be doubted. They may eradicate entirely all hereditary predisposition to disease; not in one generation; but, by pursuing the course prescribed through several generations. The predisposition to disease may be weakened, in the first individual properly educated; I mean physically as well as mentally. In his descendants it may be further weakened; in their descendants, further still; until in the fourth or fifth generation (perhaps sooner) it may be entirely eradicated. In this there is nothing of hypothesis. The emendatory process is governed by principles, as well known, and as plainly settled, as any in physiology. That the issue, therefore, must be favourable seems as certain, as that any other chain of causes will necessarily produce effects corresponding to them.

There must have been a time, in the history of mankind, when no hereditary predisposition to disease existed. How, then, was it produced? The answer is plain; by intemperance in diet or drink, or the indulgence of the passions, exposure to hardships or inclemencies of the weather, or some other kind of mismanagement or misfortune. Something brought it on, by deleterious impressions made on one or more of the organs of the body. By countervailing impressions, therefore, it may, in time, be done away. What one set of causes has done, an opposite set may undo. This we see verified, by the occurrences of every day. Indeed a great part of the economy of nature consists in these conflicting processes. Out of them grows much of the harmony and beauty of the universe. In the removal of hereditary predispositions to disease, then, we have but to study and imitate the works of nature in other instances. It is only by doing this, that we can ever succeed in any thing, and become useful to ourselves and others. It is by improving in this way alone, that man can be brought to that degree of perfection, corporeal and mental, of which he is susceptible. And thus may natural means, which are more or less under the control of every one, be rendered subservient to the production of that millennial condition, which is believed to

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await us. I shall only add, that to prove certainly successful, the course of treatment directed must be pursued faithfully from infancy to old age. In other words; through life.

ART. III.—*Observations on Variola.* By JOHN P. DECLARY, M. D. Health Officer of the City of Louisville, Ky.

HAVING recently had an opportunity of seeing several hundred cases of this disease, I shall offer as the result of some experience a few observations upon the subject. It cannot now be asserted, that variola is stricken from the list of diseases. The occurrence of at least one hundred deaths from it in this place, and its mortality under the most judicious treatment, attest too plainly that it still exists, and such results afford melancholy evidence of its still formidable character. The observations of medical men at different points, if collected, might afford a body of information sufficient to enable practitioners in future times, not only to treat the disease with confidence, but to settle the still debated question, of the prophylactic powers of vaccination.

The public are greatly indebted to Prof. Caldwell, for the enlightened views presented by him some years since on the subject of contagion. My mind was early impressed with their truth and importance, and it gives me pleasure to add my experience in confirmation of them. Variola was considered by him as contagious. The origin of disease is most frequently hid; and we can only judge by the effects produced on the human system, of the existence of a noxious principle injurious to life.

This principle may be modified by the operation of various causes, as climate, temperature, state of mind, food &c. We know that a northern constitution when first exposed to a

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southern climate, is apt to contract bilious disorders; while the native of the south, inhaling the same vitiated atmosphere, escapes unhurt. Whence this immunity in one case, this susceptibility in the other? It is traceable to that great principle of organized matter, which enables the constitution of man, to withstand all changes of climate, and adapt itself to the various exigencies by which it may be surrounded. Yet, in the wide range of disease, there are some which attack the human system, in every situation where man is exposed to their influence. Such alone should be denominated contagious. A disease to be of this kind should unite the following characters. It must possess a peculiar and specific virus; it must communicate itself at all times, and at all seasons, and produce a like consequence, in all individuals. Happily for the human family, such diseases are limited in number. The doctrines of former days, in relation to higher grades of bilious diseases, such as yellow fever, plague, &c. which afflict certain portions of the globe, have given way to the light of a truer science.

Febrile diseases, however changed and modified, by circumstances and situation, are now generally acknowledged to belong to the same family. They have one and the same origin. They are a unit; and as such must be treated by the judicious practitioner. A contagious disease possessing the characteristics above specified, is of a different nature. Here legislative enactments when properly enforced, can circumscribe its limits and prevent its serious extension.

Variola was first brought to Louisville by an individual deck passenger, on board one of our steam boats. There was doubt as to the nature of the complaint: and its communicating a like disease to other unvaccinated members of the family, first evidenced its true character. Its extension could successively be traced from one neighbourhood to another, until the whole city was pervaded by its influence. Its second, and present invasion, is understood to have been from another point. It may here be stated that varicella, or chicken pox, has also occurred in some instances, and been mistaken for

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some of the modified forms of real Small Pox. This will generally be the case, during the existence of the above mentioned contagion. All diseases will assume, in a greater or less degree, the livery of the general predominant affection, whatever that may be.

The disease here, as elsewhere, is characterized by severe pain in the head and back, cough, a general intumescence of the skin, and mucous membrane of the mouth and throat.

It has been divided by modern pathologists into three varieties—the confluent, the distinct, and the varioloid affections. It is the first of these divisions, which carries in its form the real terrors of the disease. It is here that the original organization of the system is broken down, and the powers of life often destroyed, in their endeavours to get rid of the noxious principle. The distinct disease is a modification of the first, although still attended by many alarming symptoms, and is frequently fatal in its termination. The varioloid is a milder gradation still, and in no instance which has occurred in my practice, has its event been fatal, although it has been ushered in by violent febrile commotion. It is therefore the confluent disease, which should more particularly engage our attention.

The disease commencing with the symptoms above stated, continues until after the third or fourth day, when an eruption begins to appear on the face, neck, and breast, which continues to multiply, until the greater part of the surface, is covered by it. Upon the appearance of the eruption, the general febrile symptoms subside. It may be borne in mind that there are two dangerous periods of disease, in confluent and distinct small pox; the commencement of the attack, and the secondary fever. There is no danger of death from the fifth to the tenth day, after the eruption has been thrown out; on the eleventh in favorable cases, the pustules abate, dry away, and by degrees peel off, and finally disappear about the fifteenth or seventeenth day. In varioloid disease, there is no secondary fever, and the eruption has generally dried up by the tenth day after its appear-

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ance, leaving small knotty excrescences on the face, neck, and breast.

The irregularities of variola are what we are most to dread, and the object of the physician should be, to bring them within the circle of regular disease. When its progression is interrupted, and the eruption assumes a different character from what it should present in its regular course, danger may always be apprehended. If the pustules instead of filling and enlarging, become flat and run into each other; if their inflammatory appearance assumes a sickly hue, and the pustule, instead of containing consistent pus, retains its clear, horny texture; the result will assuredly be fatal, unless the powers of the system and proper treatment, can restore the misdirected efforts of nature, into their proper channels. No recovery will take place in confluent or distinct variola, unless its different stages, are regularly and properly gone through. The same remark will not apply to varioloid.—Death will rarely result from it, however violent may be the attack.

A great misfortune in the treatment of variola is, that we are frequently unsuspicious of its nature, and the time for the proper application of our remedial agents may have passed. It is during the first period of its invasion and before the eruption, that we may look to the effecting a modification of its subsequent violence. A course of treatment during the eruption, such as would have been proper previously, will inevitably tend to interfere with its natural and regular progression, and materially interrupt what is essentially necessary to its cure. In general we must be governed by symptoms. In strong, athletic constitutions, where the attack is violent, bleeding must be freely used. Mercurial purgatives are commendable, whenever the tongue presents a furred and coated appearance; but purgation should not be carried to too great an extent—particularly during the eruptive stage. It is better here, to trust to the powers of nature—to cooling accidulated drinks, free ventilation, and moderate exercise, than to interrupt her salutary efforts, by the officious

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interference of art. The use of wine-whey, when approaching debility evidences a sinking of the vital powers, is strongly recommended, with diaphoretics at night, throughout the disease. In the latter stages, camphor and opium may be resorted to with beneficial effects, and blistering when the eruption is backward should never be omitted.

The number of cases of varioloid which have succeeded vaccine disease, and in individuals who felt the utmost security, has gone far to shake public confidence in the prophylactic powers of vaccination. The cause of this may be traced to several distinct sources. 1st. The careless manner in which the vaccine virus was first introduced. 2nd. Interruption during its natural progress. 3rd. The want ofentire saturation in the system during such disease. 4th. Spurious matter.

The vulgar opinion of vaccination wearing out, has received its sanction from the third of these causes. Where perfect saturation has taken place, it produces a complete insusceptibility ever after. Few there are at present, who pass through the early periods of life, without being at one time or other subjected to vaccine infection; yet there being possibly at the time no cause of alarm, the subject itself is considered so trivial as to pass by, without exciting particular attention. The circumstance itself is mostly forgotten or recollected so indistinctly, as to evidence plainly that it could have made but little impression at the time. In this way four fifths of the cases of imperfect vaccination have occurred, and the other fifth may with propriety be attributed to the other causes. To render the system perfectly insusceptible and safe, in all future time, I do not hesitate to recommend successive vaccination, until all susceptibility to it is destroyed; or what I consider better, when practicable, after genuine vaccination has been gone through, to insert the matter of variola. A vesicular soreness of the arm is the only unpleasant consequence, and the system is ever after guarded against invasion.

Genuine vaccine virus introduced into the system by punc-

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ture, shows a slight redness and inflammation about the third day; which progresses and enlarges, until the ninth, when slight febrile symptoms supervene. The pustule itself should be circular, its margin well defined, neither rough nor jagged—the central depression evident, and dipping down from the sides—drying up on the 10th or 11th day; the scale should fall off by the seventeenth. This should be of a clear mahogany brown colour, transparent when held to the light, with the central depression still evident. In the scar left, the indentations of the skin should be preserved, particularly around the edges, without a loss of natural appearance.

In genuine vaccine inflammation at its height, the tumefaction surrounding the pustule, has a scarlet blush mixed with a yellowish tinge. The communication between the pustule and the surrounding inflammation is neither equal nor uniform, but invariably displays itself in the form of radii.

In spurious vaccination the vesicle has none of the above characteristics. Its edges are jagged and run directly into the inflammatory blush. The inflammatory action and febrile symptoms, are uniformly violent, and one diffused inflammation exists between the pustule and surrounding integuments. The scar left, has a smooth shining surface, with the texture of the skin entirely destroyed, the edges of the scar even with the surrounding skin. The pustule should never be interrupted in its progress, otherwise the efficacy of the operation may be prevented. Hence matter should not be taken from the arm at all. If taken it should be the pillucid fluid formed previous to maturation.

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ART. IV.—*A remarkable case of Preternatural Labour.* By SAMUEL PRIDE, M. D. of Maryville, Tennessee.

MRS. M. was taken in labour on the morning of the 12th of July 1829, with her fourth child. On the evening of the same day, I was called to her. Twelve months previous to this time, she was delivered of a child by perforating the head, it being a presentation of the head, hand and umbilical cord. In the present case, at the time I saw her, the os tincæ was remote and unyieldingly rigid. Between this, and daylight next morning, she was bled three times copiously, but with slight effect upon the os tincæ. It was still rigid and contracted on the recurrence of the pain. The head presented naturally and the waters were undischarged. An attempt was now made cautiously to dilate the womb, but without effect. There being no contra-indications, and V.S. having been perseveringly, but unsuccessfully tried, an opiate was administered, which seemed in some degree to overcome the rigidity. The pains which, previously, had been suspended, now returned and gave a hope that the labour would be speedily terminated. But contrary to all expectation, the head disappeared, and was found resting high up in the left side of the pelvis, and the feet presenting at the mouth of the womb plainly enough to the touch. Some efforts were made to retain them in this situation, dilate the mouth, rupture the membranes, and constitute it a footling case. But in this, also, I failed, owing to the still unyielding rigidity of the mouth. As there seemed now to be no urgent symptoms, the waters not having accumulated to any considerable extent, it was determined to wait a time for the tonic contraction of the womb to dilate its mouth. After the lapse of an hour or two, the pains being pretty strong, an examination was again made, and to my astonishment I found that the head had again taken its station at the mouth of the womb, and with it a hand. The mouth being now rather more open,

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and somewhat dilatable, and the liquor amnii having considerably accumulated, I concluded to rupture the membranes; keep back the hand, and in this way, give the womb an additional power over the os tincæ, and the child. This, with some difficulty, was accordingly done; the head advanced and the hand receded, until the former had fairly engaged in the bones of the pelvis, where it was again obstructed by the rigidity of the mouth. It may be necessary to remark, that the bladder was empty and the bowels open, and that nothing seemed to indicate blood-letting, but the firm and obstinate state of the os uteri, and this having been, as I believed, thoroughly tried without effect, my confidence in its efficacy, in this case, was lost. The friends now became alarmed for the safety of the patient, and a consultation was requested. In the course of six or eight hours additional council arrived; during which time she had remained free from pain, and slept comfortably. I found however, that during this interval of apparent ease the head had receded a little, that the hand had advanced, and, with it, a foot had made its appearance; so that at the same time, the head, hand and foot could be clearly distinguished at the mouth of the womb. In this situation the consulting accoucheur found her. The child was not known to be dead. An attempt was now made to pass the head, push back the hand and grasp and bring down the feet, but I was again foiled because of the still unconquerable rigidity of the os tincæ. This attempt had been preceded by 30 drops of tr. opii, which brought on strong pains, followed by hæmorrhage in a slight degree. A hope was now entertained that this occurrence would relax the mouth, and therefore, for a while, further attempts to deliver were suspended; keeping the the hæmorrhage in moderation by cold applications. After waiting sometime for these changes to take place, another attempt at dilatation and delivery was made, but only with the same results. We were now almost in the act of abandoning all hope of success, and leaving the patient the melancholy prey of preternatural and unconquerable difficul-

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ties, when we were again summoned to the bed-side by an unusually severe pain. Upon examining, to our great joy and gratification, the head had again disappeared, and the foot and knee of one leg had fallen into the lower straight with the hand still grasping the thigh. The progress of the labor was now slow and laborious in a remarkable degree; but as it advanced, the hand receded, and finally disappeared, till the breech engaged the bony arch, with the other foot and leg doubled on the abdomen. Thus, after a most harassing, and painful labor of forty-eight hours, was the delivery accomplished: At first, a natural presentation of the head; in its progres the fœtus performing three complete spontaneous revolutions, and finally terminating a footling case. It is hardly necessary to say that the child was dead.

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REVIEWS.

ART. V.—"*On Baths and Mineral Waters.' In two parts. Part I. A full account of the Hygienic and Curative powers of Cold, Tepid, Warm, Hot, and Vapour baths, and of Sea-bathing. Part II. A History of the Chemical Composition, and Medicinal Properties of the Chief Mineral Springs of the United States and of Europe.* By JOHN BELL M. D. Lecturer on the Institutes of Medicine and Medical Jurisprudence, Member of the Medical and Kappa Lambda Societies, and Fellow of the College of Physicians, Philadelphia, and of the Georgofili Society of Florence, &c. &c. One vol. 12mo. pp. 532. Philadelphia, Literary Rooms, 121, Chesnut Street.

FEW subjects in the range of science afford so rich and glorious a theme for a history descriptive and philosophical, as that of water. Yet such a history, in its full extent, has never been written, nor, as far as we are informed, attempted. The achievement is reserved to shed a lustre on the name of some future scientific and literary adventurer. And it will do so. That a subject at once so rich and inviting, so abundant in fame to a successful writier, and so fertile, as a source of instruction and delight to readers, and of benefit to the world, will be forever neglected, does not fall within the compass of belief.

Water is one of the prime agents, by which Nature accomplishes her *terrestrial* economy. Its influence and operations in *other worlds*, being matter of opinion rather than of history or philosophy, do not particularly interest us, on the present occasion. Its importance in *earthly* affairs alone concerns us; and, were experience wanting, that might be confidently inferred from its vast amount and general diffusion. Such are the wisdom and beneficence of the provisions around us, and such the fitness and harmony, which render creation

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a work of perfection, that what is every where most useful and necessary, and contributes most essentially to the existence and enjoyment of living, sensitive, and intellectual beings, is every where most abundant, and most easily accessible. Proof of this we have in the universal prevalence of atmospherical air, and of the matter of light, heat, and electricity, without which the world would be lifeless. Blue and green are not only the most beautiful and delightful colours of the spectrum; they are also the most mild and salutary in their action on the eye, and therefore the least likely to prove injurious to vision. Hence they prevail by far the most extensively, being seen alone in the arch of the heavens, the expanse of the ocean, the leaves of forests and groves, and the grass of prairies, plains, fields, and meadows.

In the form of oceans and seas, lakes and rivers, water constitutes more than two thirds of the surface of our globe. In many scenes its appearance is indescribably beautiful and attractive, and and in others no less terrible and sublime. Instances of the former we have in the dewy pearls and fairy frost-work of morning, the meanderings of the chrystal rivulet, over its bottom studded with pebbles, and within its banks fringed with verdure and blossoms, and in the mountain cascade, leaping from shelf to shelf in sheets of silver, and breaking, at its base, into sparkling spray and snow-white foam, and of the latter in the broad sweep of the mighty river, the headlong plunge of the cataract, and the heaving and interminable surface of a calm, or the fearful aspect of an angry ocean. Other examples to the same effect are presented in the majesty of the ice-berg, the beauties of the rainbow, the glories of the morning and evening skies, and the gloomy grandeur and gushing fountains of the thunder cloud.

Such are a few of the manifestations, which belong to the description or poetry of water. Its philosophy or practical operations, in the economy of our globe, are no less striking, and bear more directly on the well being of man, and of every other form and order of living matter.

Were our globe waterless, it would be an azotic mass,

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sightless, dreary, and destitute of every beauty and attraction. No vegetable would bloom in it, no fragrance load the breeze, no golden fruit ripen in the sun, no insect crwl, ano bird display its plumage, no music fill the air, no quadruped or lordly human form move in grace and majesty on the plain; nor would the sweets and joys of affection, the wonders of intellect, or the sanctity of morals and religion have even a name. Were proof of this wanting, it might be drawn abundantly from the deserts of Arabia and Africa, many parts of which are marked with the desolation of a want of water. Even in our own country much testimony to the same effect may be derived from desert plains, which lie between the Mississippi and the Rocky mountains.

But it is not living matter alone that depends on water for its existence. The same is also true of many forms of dead matter. We are indebted to water for all our rich alluvion, the materials of which are washed from hilly and mountainous grounds, and deposited where the surface is lower and more level. In this way are all our prolific Deltas, and many large and fertile islands formed. In the production and stratification of rocks, the action of the same element is essential. This is most strikingly manifested in countries of secondary and ternary formations. Crystallization of every description, that of the diamond perhaps excepted, is the product of water. That fluid is at least indispensable to it. Without water therefore we should have no salts in their present form, no marble, porphyry, flint or granite, nor any sort of precious stones. And although that element is not concerned in the production of metals, it has an important agency in the formation and deposition of ore-beds. Nor is this all. Water is the immediate basis of all fluids, so indispensable in the composition and economy of living as well as dead matter. The respirability of atmospherical air, if not its existence, depends on it. Man and other animals cannot subsist in a waterless atmosphere. This appears from the destructive character of the Sirocco wind, which is nothing

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but a stream of air deprived of all its moisture, by passing over a region of arid and burning sand; and the atmosphere of a close and heated stove-room would become too dry for the purposes of respiration, if its exhausted moisture were not restored, by aqueous exhalation from an open vessel placed on the stove. Nor is this the only respect, in which the atmosphere is influenced by water. It is materially modified in its temperature by it, and derives from it a portion, if not the whole of the oxygen which it contains. But oxygen is the feeder of combustion. That process, therefore, as well as other forms of oxygenation may be strictly said to be dependent on water. The same element is moreover the true source of *cleanliness*, the comforts and advantages of which, while they are too important not to be refered to, are too numerous to be at present recounted. Nor must it be forgotten that it is also the source of steam, the power of which is so stupendous, and its benefits to man so multiplied and boundless.

These are some of the purposes, which water subserves, in the economy of our globe. And their interest and importance will not be denied. But they are not the only ones, that might be cited. In a particular manner, they do not embrace all the objects of the several forms of BATHS, which constitute the subject of the work we are about to examine.

The great and varied usefulness of bathing is universally admitted. Yet all the benefits to be derived from the judicious performance of that process, in its different modes, are far from being generally known. They are not fully known even to those who profess to have studied them; much less are they known to the great body of physicians, most of whom have paid but little attention to them; and less still to the public at large, who have rarely bestowed a serious thought on them. Dr. Bell has therefore acted judiciously, in making "Baths and Mineral Waters" the subject of a distinct and much wanted work. He could scarcely have selected a more appropriate and useful theme. It is

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peculiarly suited to the present condition of the American people, who, be the cause what it may, are less conversant with the cleanly, comfortable, and salutary practice of bathing, than those of any other nation, equally advanced in civilization and knowledge. In truth, they fall, in this respect, far short of nations that are scarcely civilized at all, and whose general ignorance overshadows them like a chilling and portentous cloud. The Russians, Huns, Poles, Swedes, and Finlanders, and we believe also many tribes of the American aborigines, and of the natives of Africa, practice bathing much more extensively, than the inhabitants of either Great Britain, or the United States. Our present business has reference more especially to the latter, to whom we trust the principles and effects of bathing will be made better known, and the practice rendered more acceptable and general, by our author's excellent treatise, whose influence this review is intended to aid. That the Anglo-Americans should become more familiar with the bath than they are, at present, or ever have been, is demanded alike by personal cleanliness and personal health. And we express but a common truism, in saying, that purity of person is not only an emblem and fit accompaniment of purity of mind, but tends to promote and confirm it. An individual regardless of external cleanliness, is an object the very reverse of attractive, and is considered, we believe justly, as necessarily wanting in internal refinement, and delicacy of feeling. This would seem to be more emphatically true, as relates to females. A woman of a pure mind has an instinctive love of personal purity, and never neglects it. But, what is true of an individual, in this respect, is true of a people. The condition of things *without*, bespeaks their condition *within*. Independently of all other considerations, then, pride of national character should induce the Americans to resort to the bath much more frequently than they do. To cleanliness of apparel they are not inattentive. But this alone would render them only "whited sepulchres." By *externals*, in the present case, we mean the *skin*, and the

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whole skin; not a part of it, and that the part *alone which is visible.* We venture to say, that there are thousands, perhaps hundreds of thousands of individuals, in the United States, who pretend to fashion, and would be deeply affronted, at not being regarded as ladies and gentlemen of standing and taste, who do not, in warm weather, wash more than their hands, face, and neck (the latter being often forgotten or neglected) once in *a week*, and, in cold weather, once in *a month.* In such cases, whatever may be the condition of *outer* garments, the *inner* ones must be necessarily soiled by the skins they touch, the comforts of personal purity must be wanting, the functions of the skin can scarcely fail to be deranged, and, particularly in those of delicate constitutions, general health must suffer. It is notorious, that many cutaneous complaints owe their origin to this want of cleanliness. So do diseases of a more general character.

In most of the large cities, of the Atlantic States, bathing is growing gradually into fashion, and consequently into esteem. But, compared to the advancement of those places, in other forms of apparent refinement, its progress is slow. And, as respects the interior of the States, the practice is there almost entirely unknown. When a traveller, fatigued and covered with dust, arrives at an inland country town, containing many well looking houses, and several thousand inhabitants, most of them well dressed, and not a few of them wealthy, he may as well ask for an excursion in a steam-boat, or a jaunt on a rail-road, as for a regular warm bath. We trust that this state of things, so entirely wanting in convenience and refinement, not to bestow on it deeper censure, will soon terminate, and that the volume before us will contribute its share to accelerate the change.

From a short and well written preface, it appears that Dr. Bell has been many years engaged in collecting materials for the treatise we are reviewing; and, not only in reading and correspondence, but in observation and experience, his researches have been extensive. Nor has he failed to arrange and mature the whole, with clearness and ability. He

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manifests throughout a correct understanding of his subject, and handles it with equal dexterity and skill, as a medical philosopher, and a practical physician. In fine, although it will appear hereafter that we do not concur with him, in all his views, we consider his work the best we have ever perused, on the several topics, to which it relates.

The work is divided into two parts, the first containing nine, and the second seven chapters. Chap. I of Part I treats of the antiquity and universality of bathing, and the importance attached to it, in ancient times. So invaluable was the practice deemed, as a preservative of health, that, the more completely to enforce its observance, as well as on account of its being an emblem of internal purity, it was erected into a religious rite, and thus rendered, at once, not only obligatory, but sacred. The author traces the history of bathing up to the times of the Pharoahs of Egypt, the daughter of one of whom is represented, by Moses, to have gone down to bathe herself in the river Nile. We apprehend he might have safely alleged, that mankind have a constitutional propensity to bathe, which, more or less extensively, according to circumstances, they have indulged since the commencement of their being. He speaks of the existence of domestic baths among the ancient Greeks and Trojans. Diomed and Ulyses used these, after washing themselves in the sea. Andromache prepared a warm bath for Hector, on his return from battle. Penelope called in "the aid of unctions and baths, to mitigate her melancholy for the prolonged absence of her husband." Minerva "imparted renewed vigour to the wearied limbs of Hercules, at the warm springs of Thermopylæ; and Vulcan, in place of other gifts, offered him warm baths."

In his reference to bathing, as a part of hygeine, or the art of preserving and confirming health, our author very correctly expresses his disapprobation of the general use of the cold bath, especially as applied to young children, and persons of feeble constitutions, with a view to strengthen them, and give them personal hardihood. He speaks particularly

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of the Spartan practice of "plunging their new born infants into cold springs." He justly alleges that many weakly children must have been destroyed by this severe and unfeeling process, and that those who survived it, and attained adult age, "in florid health" and with robust frames," did so *in spite* of cold bathing, rather than *in consequence* of it. That merciless immersion was a test and measure of what the subjects of it could bear, not a means of qualifying them to bear. He questions, we think on just ground, the necessity and even utility of the "Finlanders, Russians, and other people of the extreme north," seeking hardihood, and a power of endurance, through the process of immersion in cold water.

The progress of bathing is next considered. The practice passed into a luxury, and kept pace, in its means and indulgences, with the march of wealth, indolence, and voluptuousness. In Greece and Rome, public baths were joined to the Gymnasia, "so that athletic sports should be succeeded by bathing, and those again alternate with conversation on literature and morals, while the people were sitting, or slowly walking under their long and finely sculptured porticoes."

The Romans, who, at first, were but imitators of the Greeks, learnt, in time, to surpass them, and all other nations, in the dimensions and magnificence of their baths. They were of all temperatures that luxury and voluptuousness could desire. "Architecture, sculpture, and painting exhausted their refinements on these establishments, which, for their extent, were compared to cities." The baths of Caracalla and Dioclesian, especially those of the latter, exceeded all others in size, grandeur of style, and sumptuousness of decoration. Some conception of the vast dimensions of the Dioclesian baths may be formed from the fact, that a single hall of the edifice constitutes now the church of the Carthusians, one of the largest and most resplendent temples in Rome. The imperial monster, whose name the stupendous superstructure bears, is said to have employed forty thousand christian soldiers in erecting it, and, on its completion, to have had

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them first degraded with every possible mark of ignominy and then assassinated.

"The private baths, at some of the villas of persons of rank and wealth, vied in splendor with the public thermæ. According to Seneca, the walls were of Alexandrian marble, the veins of which were so disposed as to resemble a regular picture: the basins were set round with a most valuable kind of stone imported from the Grecian islands; the water was conveyed through silver pipes, and fell by several descents in beautiful cascades; the floors were inlaid with precious gems; and an intermixture of statues and colonnades contributed to throw an air of elegance and grandeur over the whole."

For some time after the establishment of public baths in Rome, modesty and decorum were sufficiently observed in them, the sexes bathing in separate apartments. But unblushing voluptuousness and profligacy rose, at length, to such a pitch, that men and women mingled promiscuously, during the process, until it became necessary to prohibit such openness and grossness of debauchery, by severe and sanguinary edicts.

A variety of different expedients in bathing were adopted, all of them tending to heighten the activity of cutaneous circulation, and give a centrifugal direction to the blood. The most efficacious and valuable of these were the use of aromatic perfumes, mixed in some slightly stimulating liquid, and rubbed on the skin, friction with the hand, or some other substance, pressing and stretching the limbs, and cracking the joints, and gently switching the surface of the body, with bundles of small birchen twigs. Such means, judiciously and skilfully employed, must have had a favorable effect on health. The following account of the singular and extraordinary practices connected with bathing, in the north of Europe, while it is full of instruction, cannot fail to possess interest for the curious and philosophical reader.

"Baths are generally met with in all northern Europe, viz. Finland, Lapland, Sweden and Norway, attached to or forming part of the houses of all classes. Almost all the Finnish peasant, says Acerbi, have a small house built on purpose for a bath; men and women use it promiscuously, without any concealment of dress, or being in the least influenced by any emotions of attachment. The apartment is nearly dark, as there is no other window but a small hole, nor any light but what enters in at some chink in the roof of the house, or crevices between the pieces of wood of which it is constructed. My astonish-

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ment, says the writer just quoted, was so great, that I could scarcely believe my senses, when I found that these people remain together for the space of half an hour, and sometimes a whole hour, in the same chamber, heated to the 70th or 75th of Celsius, equal to 167° of Fahrenheit, or within 8° of boiling spirits. The bath, here, was of vapour evolved by pouring water on stones of a red heat. The Findlanders will sometimes come out, still naked, and converse together, or with any one near them, in the open air. If a traveller happens to pass by while the peasants of a hamlet or little village are in the bath, and their assistance is needed, they will leave the bath, and assist in yoking or unyoking and fetching provender for the horses, or in any thing else, without any sort of covering whatever, while the passengers sit shivering with cold, though wrapped up in good wolf's skin. The Finnish peasants pass thus instantaneously from an atmosphere of 167° of Farenheit to one in which the thermometer is as low as 24° below zero, which is the same thing as going out of boiling into freezing water; and what is more astonishing, without the least inconvenience; while other people are very sensibly affected by a variation of but five degrees, and in danger of being afflicted with rheumatism by the most trifling wind that blows."

This chapter contains much interesting matter, of a historical character, compressed into a limited compass, and exhibits full evidence that our author has spared neither labour nor trouble, to acquire a thorough acquaintance with his subject.

Chapter II treats "of the skin; its structure and offices; its connexion and sympathies with other organs; the manner in which it is affected by bathing," and other topics related to these. From our saying that this chapter proves Dr. Bell to be an enlightened and able physiologist, it must not be infered that we concur with him in all the opinions it contains. Far from it. We differ from him in several, to some of which we shall refer hereafter. In the mean time, as our *present* object is to favour the reader with *his* views, not to trouble him with *our own*, we shall indulge ourselves in making a few extracts from the work. We give a part of his exposition of the *immediate* effects of bathing, on which its ultimate effects, whether for good or evil, depend.

"The second and important series of effects from bathing, are referable to the temperature of the fluid in which the living body is immersed. These are produced on the nervous system, and through it on the circulation of the blood, respiration and other important functions. The first impression is on the extremities of the nerves expanded over the true skin, and beneath the mucous body or coloring pigment and the cuticle; this is transmitted to the brain,

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where it is converted into sensation, varying with the nature of the agency and the susceptibility of the nervous system. A few physiological remarks will find their place here, and prepare the reader for the better understanding of what follows.

It is not sufficient that the several organs be nourished by blood and other fluids, and supplied with nerves; they must have appropriate impressions made on them by particular substances termed stimulants, which, when applied, increase the sensibility of the organs, and invite more blood to flow towards them. It is thus that the nerves are kept in a certain degree of exercise, and the vessels full, and in a measure turgid. Those agents which have a directly contrary effect, by paralyzing the sentient extremities of the nerves, and diminishing general sensibility and powers of perception, and retarding the flow of blood to the part, are termed sedative. We have examples of the first, in the effect of light on the eye; air, put in motion on the ear; pure air on the lungs; food and drinks on the stomach: and so on. The instances of the latter are presented in darkness, perfect stillness, stagnant atmosphere, and privation of aliment.

It may be alleged that darkness and the like being mere privations, cannot be considered as separate powers or agencies, since they are merely the absence of customary stimuli. This is the fact agreeably to rigid logic; but yet an arrest or retardation of the movements and functions of the animal economy is attended with as marked phenomena as either accelerated or excessive action. In physiology, we know that, if the appropriate stimulus be withheld from an organ, so as to prevent for any length of time the sensations peculiar to the part, there follows at first feebleness, and finally loss of function, similar to what would ensue on the application of a direct sedative.

Occasional abstraction of its appropriate stimulus renders an organ more susceptible to the impression of the latter, as is the case, for example, of a person who has been for some time in a dark room, and then returns to the light of the day, or of a lamp or candle. Hence the degree of excitement or increased functional activity of an organ depends not only on the stimulus applied to it, but also on its susceptibility: in other words, the same stimulus operates with a force varying according as its application is continued or intermittent. If therefore, we desire to increase the power without augmenting the amount of stimulus, we have but to abstract the organ or part from the operation of this latter for a definite time. Thus the light of a candle, which enables the eyes to see with readiness, and is rather grateful than otherwise, becomes excessive, and produces involuntary closure of the eye-lids, if it be suddenly introduced, just as we awake from a sleep, or after being in darkness for an hour or two. The striking of a clock in a house startles a stranger, who hears it for the first time, when it is hardly heard by the residents, or if heard, is followed by no distinct perception. A person long hungered and fasting will be excited to a feverish state by a portion of food, too small to produce the least sensation in one who sits down to his regular meal.

The more tolerant a sense or organ is of its accustomed stimulations or impressions, the more vigorous we find it to be in the exercise of its office: hence a means of strengthening a part is to exercise it regularly and often; in oth-

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er words, to place it frequently under the influence of its appropriate stimulus. This is what may be called direct stimulation, and the persistence of the practice is both evidence and cause of vigor. Habit, that is, a suitable education of the organs, will enable us to give them often a great degree of promptness and extent of function, as in the eye or ear long practiced; in the stomach accustomed to much stimulating food; the muscles to varied movements; and so on. But here we must be cautious least we urge the exercise to undue bounds: if we produce thereby not only common and distinct perception, but some degree of uneasiness and pain, we may be sure that we have gone too far, and that the part instead of gaining, has lost vigor, and is thrown into a state of indirect debility—that is, debility following excessive action. Its powers of resistance are now less, and it is liable to be seriously and permanently injured, unless the exciting cause or stimulus be withdrawn. It is thus that eyes, strained as it were by much writing, or reading fine print, or by engraving, or fine needle work, can only recover their former powers of vision by the sufferer desisting from these employments, and shunning exposure to any other than the mildest light. Habit, then, we are to remember, is only useful in giving energy to a part or the whole economy, when the exercise is not productive of uneasiness, or of a lassitude that cannot be recovered from by rest. If, on the contrary, the exercise be followed by painful and morbid sensations, a persistence in the practice or continuing the habit does but aggravate the mischief. Not only must time be allowed in this case for the nerve or nervous expansion to recover its healthy sensibility, but also for the small vessels which, in the excessive exercise of the part, were turgid, some filled with blood, and some with other fluids, to expel their contents, and be restored to their original diameter. It is hence wisely ordained, in order to guard against these sufferings from the above cause, that the different senses should have intervals of repose, that is, that their exercise should only be intermittent. Alternate action and repose is the condition for their healthy existence. Even in internal parts, which cannot actually rest entirely, such as those by which the circulation and respiration are performed, there is a diminished activity at particular periods, in order that they may acquire fresh vigor for subsequently greater acceleration of function."

The following summary of the chapter, prepared by the author himself, and thrown into the form of inferences drawn from previous discussion, will well reward the reader's perusal of it.

"*On a review of what has been said in this chapter, we find that:*

1. The skin, with a superficies in an adult of about fifteen square feet, consists of three laminæ, the outer one hard, and in a measure horny; the second and middle soft and pulpy; the third and inner firm and resisting, with a great many fine vessels and nerves spread over it after having penetrated it from the fatty and cellular tissue beneath.

2. From the cutaneous surface is secreted and exhaled different gases, the chief of which is carbonic acid gas or fixed air, a watery vapour or insensible

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perspiration, and at times an aqueous fluid, holding salts in solution, and constituting what is called sweat: from small bodies or glands there is also discharged on particular regions of the skin an oleaginous fluid. The skin absorbs or allows to pass through its pores various gases, the chief of which is oxygen gas, and also watery vapour.

3. In addition to its other offices of supply and discharge, the skin is also the seat of the sense of touch, and as such is connected with the brain, and other senses, by a variety of relations.

4. Acting by a well established law in physics, the skin is a surface for evaporation and consequent cooling.

5. This tissue is continuous in the various openings at the eyes, nostrils, lips, &c. with the membranes lining the eye-lids, and those on which take place the senses of smell and taste; also with those continued from these parts down into the lungs in one direction, and stomach and intestines in another, and on which take place the chief phenomena of respiration, and of the different stages of digestion. In another direction, the skin is continuous with the mucous membranes lining the organs peculiar to each sex.

6. The sympathies of the cutaneous tissue with these internal membranes, must, *a priori*, seem evident, as well from the general sameness of structure as from community of office—the skin exhaling and absorbing vapours and gases like the lungs, and fluids like the digestive canal. But not only does it sympathise with these, but with other membranes of the serous class, such as that investing the lungs, and the one covering the abdominal viscera; also, that variety lining the joints, &c.

7. The influence of the skin over the animal economy must be manifestly great, and of course the operation of the agents, by which it is impressed, ought to be familiar to us. These act in two ways. 1. By exciting or diminishing its nutritive functions of absorption, and secretion and excretion; and 2. By increasing or diminishing its sensibility and sensations.

Bathing affects it in all these ways: by softening the cuticle or outer hard lamina of the skin, a more ready entrance is afforded to water and other fluids, and by subsequent friction, this part more readily peels off, so as to leave the skin more delicate for the discharge of its various functions: in addition to this, baths by their temperature acting on the sentient extremities of the nerves, and the minute blood-vessels blended with them, will either accellerate or retard the functions, according as the medium in which the body is immersed be hot or cold.

8. Simultaneously with these changes in the functions of the skin, or immediately consequent upon them, will be changes in the nervous system in general and in the circulation, respiration, digestion, and various secretions, by the links and means already designated.

9. The effects of bathing are relative to the temperature of the fluid and that of the living body to which it is applied.

10. The medium temperature of the human body is from 96° to 98° Fahrenheit. The warmth is less at the extremities than in the central parts of the body, so that in this respect there is often a difference of 6° or 8° between the

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hands and the arm pit, even when the former do not feel at all cold to their possessor.

11. Although our bodies are, in degree, obedient to the laws which govern the transmission of caloric in the material world generally, yet we have, obviously, independent sources of heat, and means for preserving an equilibrium of the animal temperature.

12. The air in which we live being almost always of a lower temperature than that of the body, there is a constant evolution, and discharge of caloric from the latter into the former. This loss would become excessive in low temperatures, but for the covering of the skin, whith is a bad conductor, and the protection afforded by clothing of woollen, or furs, which are also imperfect conductors of heat.

13. In the winter season, and in cold climates, the digestion is more vigorous, respiration fuller and complete, and nutrition more active; there is, in fine, an activity of all the organs of internal life, by which caloric is secreted. The absence, in a great measure, of sensible perspiration, or sweat, prevents the loss of heat by evaporation, and the skin from being such a good conductor as in the opposite state of things.

14. The excitement produced by living in air of an elevated temperature, is moderated by the increased cutaneous secretion, or sweat, and consequent evaporation.

15. Our sensations of heat will mainly depend on the proportion between the formation of caloric in the organs of the animal economy, and its expenditure by the surrounding air and inert substances with which we are in contact.

16. Habit, reconciles us to a wide range of atmospherical temperature. Cold air, unless so extreme as to benumb the nervous expansions of the skin, and enfeeble the nervous energy and functions generally, and hot air, equal to, and sometimes exceeding the medium temperature of the body, unless perspiration be suppressed, are both well borne. In both the average heat of the body remains the same.

17. The exhausting effects of cold, always readily felt at the extremities of the body, must be obviated, by attention to all the means already indicated, for giving energy to the system, or in other words, increasing the action of the minute vessels and nerves of the organ, by which caloric is evolved.

18. The more vigorous the circulation and nervous energy, the better can cold be borne. External heat, then, by exciting the functions, and contributing to the evolution of animal heat, enables us the better to resist cold. This must be understood of the equable operations of external heat, and its not being continued so long as to exhaust the minute vessels of the skin by copious perspiration, and of other parts by abundant discharges.

19. The medium temperature of the body is less in infancy and old age, and the ability to resist at these times the exhausting effects of cold is also less.

20. Inordinate heat of the body is felt when the cooling processes, by perspiration and evaporation, are checked. It then becomes necessary to moderate the excessive action of the organs of the body, from all of which the caloric is

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evolved. This is best done by cold applied to the skin, or by means of cold drinks to the stomach, and cold injections into the intestinal canal.

21. Our sensations of heat and cold vary, according to the conducting power of the substance applied to our bodies, and the suddenness of the change in the temperature of the medium in which we are placed.

22. Unaccustomed as we are to immersion in a watery medium, added to its ready conducting power, prevents us from experiencing any very decided sensation of warmth in a bath of less temperature than that of the human body, or at least, of its extremities."

In Chap III. we have our author's views of the "Division of baths," in which he states, that "the most important varieties are the *cold, warm, and hot.*" He also details what he considers the "distinctive effects of the cold, warm, and hot baths." He speaks likewise of "vapour baths, with their varieties, of simple and medicated—dry and moist—partial or general." In fixing a common standard for the temperature of the warm bath, an object which is not without its importance, he says;

"A bath of 95° to 97° of Fahrenheit will, both by the Laplander and the intertropical African be called warm. It will be grateful to their feelings and soothe them nearly alike. It is precisely that degree of external stimulation, or less theoretically speaking, that amount of impression which is most congenial with the wants of the nervous system. It is alike removed from enfeebling depression or perturbating excitement, and places the animal economy in a state of quietude most favorable to a correct balance of all its functions. In fixing the above as a positive standard to which the experience of all mankind will conform, we are not, however, excluded from allowing a somewhat wider range to the warm bath. We are the more justified in this, not only from individual difference of animal temperature, it being lower in some than in others, but also from the average heat of the skin, and especially of the extremities being some degrees lower than the blood and internal parts of the body. Hence, a bath of 92° to 94°, as of a temperature equal that of the extremities and most of the external surface, will at first feel warm, and to some will continue to convey the sensation. But, as already mentioned, we believe, that after a short immersion in it, there will be a slight feeling of uneasiness, or at least want of the complete and diffused sensation of warmth. For, while a very small part of the surface shall crave more warmth, there will not be a feeling of entire comfort; whereas the application of a fluid sufficiently warm for this circumscribed part will not be ungrateful to other regions of the skin of a lower temperature, provided always, that the bath be not above the point of animal heat. These remarks apply to the common healthy condition of the animal economy, where the evolution or supply in the system and discharge or loss from the skin take place with regularity. In other conditions, as where the skin of an individual feels to himself habitually hot,

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where it has been thrown into a state of excitation by active exercise, short of sweating and fatigue, or by stimulating drinks and medicines, then the evolution of caloric being excessive, a bath of even a lower temperature than that mentioned above will be called warm, because it will not exhaust or convey off the caloric so fast as it is formed. Those persons, immersed in water of 90°, or even 88°, may call it warm, at least they will declare that it conveys no sensation of chillness or coolness. But if we have regard to the declaration of a large majority of those who have recourse to the warm bath for hygienic purposes, and who retain their healthy sensations, we are safe in taking 95° of Fahrenheit as indicating the temperature of this kind of bath—and if we take the space of six degrees, three above, and three below this standard, we shall have a sufficient latitude, viz. from 92° to 98° for the warm bath, and every reasonable adaptation, within these limits, to individual peculiarities, whether of animal temperature or sensibility. If an extension of the scale be thought necessary, experience and authority agree in making it downwards, that is to say, as low in the thermometer as 90°, but in very few cases, indeed, could an extension upwards, or above 98°, be admitted, consistently with the general indications, for using the warm bath, or the effects which follow its use."

In the following quotation we find his opinion respecting the temperature of what may be correctly denominated a cold bath.

"In a bath of 70° and under, there will be a pretty general sameness of sensation experienced by those using it. The shock will be evident, and there can be no hesitation in our designating it as cold. The spring water of every country furnishes a bath of this kind to the inhabitants, although there be a range of thirty degrees between the two extremes, as we find it in the northern climate of Europe, and in the West Indies. In the former it is 40°, in the latter as high as 70°. In Pennsylvania, the cold bath of our springs is about 52° Fahrenheit. Now, all persons, no matter in what country or climate they may have lived, or by what peculiarity of temperament and constitution distinguished, whether they be in a state of health or disease, will immediately, and with one accord, acknowledge experiencing nearly the like sensation on immersion in such a bath. There will be no difference of opinion among them, as to its being cold.

It would seem, therefore, that among the kinds or varieties of watery bathing of which we have just spoken, the only ones productive of distinct and universally recognised sensations, are the cold and the warm. Of these we can speak to one another, with the conviction that we shall be readily understood, when directing them to be used. But, if the first sensations, in a bath beyond the degree of pleasurable, and what, in reference to animal heat, we may call natural warmth, be not so clear as we could wish: and if some are found speaking of such a bath as quite warm, or very warm, there are still certain obvious effects, and which serve as symptoms that ought to guide the most unwary and inexperienced. These are, acceleration of pulse, augmented and preternatural heat of the skin, felt especially in the cheeks and temples and some fulness of the head, and slight confusion of thought. As these ef-

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fects are unpleasant, and in delicate habits and invalids to be especially deprecated, it is necessary to draw on general experience, in order to prevent the risk of individual experiment, and to give, in advance, such cautions as shall prevent their occurrence. On data, furnished by these means, we have discovered, and affirm it as a truth, applicable to the large majority of the human species, that immersion in a bath above 98°, produces the phenomena already described. In other words, it displays the stimulating effects of heat on the animal economy, and is to be used with that reserve which so powerful a stimulus as high heat indispensably requires. The line of agreeable warmth is past, and we are, when immersed in water above 98°, in a *hot* bath. If any distinction between different varieties of baths be of practical importance, and conducive to comfort and health, and to the cure of disease, it is that which ought to be made, and to be generally understood, between the warm and the hot bath. Much of the disrepute into which warm bathing has fallen, and most of the erroneous conceptions respecting its hygienic and medicinal powers, have originated in an oversight of this distinction, and in confounding two agencies and modes of impression, the effects of which differ from each other in a most marked manner."

Chap. IV is one of the most interesting in the book, and contains much matter of peculiar moment. It treats of the Cold Bath, examining it in its principles of action, and in all its varieties of administration and effect. It shows it to be a very powerful, and, at the same time, a very manageable agent, in modifying the condition of the human body, in disease as well as in health, and in the robust as well as in the feeble. It points out its applicability, in the treatment of disease, on a very extensive scale, and specifies many forms of complaint, in the removal of which it is highly efficacious. Without averring that this chapter contains any thing positively new in medicine, we are justified in saying, that it contains much which is not generally known, and which physicians, as well as the public, at large, are much interested in knowing. It at least is an excellent epitome of the most philosophical and practical views, now extant, on the subject to which it relates. It ought therefore to be very generally read; and we trust it will be. Still, however, it will appear hereafter, that we differ widely from the author, in some of his opinions expressed in it; but not in his practice. In the latter we deem him remarkably correct. We think him erroneous, and shall, in the proper place, endeavor to prove him so, in some of the tenets of his philosophy or mode of ac-

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tion of cold. He denies the cold bath to be either a stimulant or a tonic. He deems it a *direct* and powerful sedative, and, in favor of this belief, presents the following view of the action of cold on certain inferior animals, as well as on man.

"In hybernating animals, or those which become torpid during the winter season, we see a gradual diminution of vital energy in their less animal heat and slower respiration, in proportion as the coldness of the atmosphere increases. Though life remain, they are motionless and comparatively insensible. The temperature of their bodies is on a level with that of the air. Many of these animals are of the mammiferous or warm blooded class; but they differ from the majority of this class in their evolving habitually less caloric, and having less energetic respiration. It is on account of this comparative feebleness that they are so much more prone to feel the operation of cold, and lose their animal heat. A bat, for example, the heat of the body of which was at ninety-three degres of Fahrenheit, the air of the atmosphere being sixty-one degrees, was put into an earthern jar in which the air was reduced by means of a freezing mixture to thirty four degrees: its own heat fell to fifty seven degrees*. In another experiment on a mountain rat, this little animal, when exposed in the beginning of summer to great cold, soon became profoundly lethargic, and the temperature of its body fell from 95° to 41° Farenheit. On being subsequently exposed to the atmospherical heat at the time, it revived, and soon regained its former activity. This prompt parting with their caloric is one of the peculiarities of warm blooded hybernating animals: but we are not to suppose that it is evinced by the large majority of the mammifera and birds. Guinea pigs and grown birds, placed in similar circumstances of a cold medium, were only reduced in heat between three and five degrees. But even this shows that the difference is only in degree, and not in kind, and depends not so much on specific organization as what may be called the accidental energy of respiration and calorification. The young of warm blooded animals, not of the hybernating kind, resemble these latter very closely, in the readiness with which they part with their heat; so that the temperature of their bodies is soon on a level with that of the surrounding atmosphere. Their breathing also is habitually less vigorous than in grown animals of the same species, and becomes, under exposure to cold feebler than common. We are justified, therefore from these premises, and numerous other facts of an analogous nature, to believe that *those animals, whether they be of a tender age or of the hybernating class, in which respiration and calorification are comparatively feeble, are the least able to resist cold; and that the direct tendency of this latter is to depress still more these two functions, so that less air is inhaled and consumed, and less heat evolved; and, at the same time, to produce a general torpor of the other functions, and especially of the nervous system.* With the energy of this system is intimately associated that of respiration and calorification: it evidently receives the first shock of cold, and on its powers of endurance and resistance will mainly depend the continued activity of the other two functions.

* Edwards, Sur les Agens Physiques.

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It would seem, however, as if the breathing was at times accelerated by cold; but we shall better express the fact if we say that the lungs in this case are subjected to two opposing influences. The immediate effect of cold is to diminish the activity of the circulation in the minute pulmonary blood vessels or capillaries, by inducing a collapse, and preventing the due passage of the blood from the arteries into the veins. Now, this interrupted circulation accumulates blood in the vessels, and acts as an additional stimulant or even irritant to them, and the nerves ramifying over them. The irritation is transmitted to the brain, which, in its turn, calls the respiratory muscles into hurried action to accelerate by more frequent expansions of the chest, and inhalations of air, the blood retarded into the capillaries. Similar phenomena take place here to what occurs when we are forced to inhale an impure air, which imperfectly stimulates the lungs: we pant and endeavor by increasing the amount of air in these organs to get a larger quantity of oxygen. In both cases, if the cold continues to be applied, and the impure air inhaled, the distinct and permanent effects of these agents, respectively, are evinced; viz. slower movements and torpor in the first, and asphyxia or suffocation in the latter.

When a person goes out into the cold air from a warm room, he promptly experiences a slight constriction of the surface, which soon becomes paler, and less sensitive than before. If the application of cold be continued, without this individual taking adequate exercise, his extremities will feel benumbed, his inclination to locomotion becomes less, his senses duller; respiration, at first somewhat hurried, is now slower, and he experiences a difficulty in arranging his thoughts, and a desire to sleep. This state, allowed to continue, ends at last in a complete torpor of all the functions of the animal economy—death itself. We have here presented to us, clear evidences of diminished sensibility, speedily followed by impeded action of the capillaries, which are no longer able to give passage to, and transmit the blood through them; and hence the paleness of the skin. This shrinking or collapse of the minuter vessels, and retarded passage of the blood through others, occur on both the internal surfaces as well as on the skin; hence the colder air expired, and absence of thirst. To the conjoined interruption in the capillary circulation of the lungs, as well as of the skin, we may attribute the change of colour in the lips and other surfaces, which, from red, as they are naturally, now become of a bluish hue.

Not dissimilar from these are the effects of immersion of the body in cold water. Before describing them with minuteness, it will be well to remind the reader, that although some authors make sixty-five degrees the limit of the cold bath, yet, in reference to the impressions experienced on immersion of the body in this fluid—the shock, and the shiver, we are justifiable, indeed required to extend this limit to seventy-six degrees. The only difference between this and lower temperatures will consist in the intensity and duration of the impressions, but not in their nature and general results. A person leaving a hot medium, whether of air or water, would find a bath even ten degrees higher than this decidedly cold.

The application of cold water to the surface of the body, whether as in the common bath, or by shower, is promptly succeeded by a general chill and shiv-

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ering, indicated in familiar language by the word shock. The skin is pale and shrunken, and not as erroneously supposed in a state of increased contraction or spasm. The prominence of the papillæ, and roughness of the skin at this time, are not the result of an active process but of the emptying and collapse of the numerous cutaneous vessels which leave the papillæ projecting, as it were, and cause, at the same time, a greater hardness of the skin. The firm fibrous tissue of the true skin and the horny character of the epidermis or scarf skin would naturally convey this sensation of hardness to the touch, when the elasticity and fulness of the capillary net work are lost by the removal, for the time, of the contained fluids. That there is really a shrinking of the vessels to the skin; diminished fulness, not only of them, but of the vessels in the cellular tissue beneath, we have good evidence in the familiar fact of a ring, which before the wearer's entering the bath just fitted the finger, or was perhaps rather tight, being found inconveniently large after coming out from it. Nor are the diminished paleness, fulness or plumpness of the outer surface evinced in those parts alone which touch the water. A cold bath, coming up only to the middle of the body, even a cold pediluvium or foot bath will remove the colour from the cheeks and give them, in persons of ready sensibility, a comparatively shrunken appearance."

We shall subjoin to these two other paragraphs, intended to corroborate the same opinion.

"That the cold bath diminishes the frequency of the pulse, is a point positively affirmed by Marcard and Currie. The former, indeed, says that his experience is chiefly confined to what he calls cool baths, in which the water was of the temperature of 60° to 63° of Fahrenheit. Buchan (*Observations on Cold Bathing*) asserts, that in all whom he had any opportunities of making observations, it was at first accelerated; but he adds, that in the experiments instituted by Dr. Currie, the pulsations of the person, who was the subject of them, were found to decrease uniformly from ten to fifteen beats per minute, becoming at the same time firm, regular and small. Athill, though he expressly states that the pulse is greatly hurried during cold immersion, admits its subsequent retardation, and tells that it is diminished in frequency from seventy-six to sixty beats in a minute, in water of 52° Fahrenheit.

But whatever doubts might have existed respecting the direct sedative and depressing effects of the cold bath, must be dispelled by a knowledge of its effects on the calorification or the formation of animal heat. When we discover that the evolution of caloric is less, and the ability to furnish it is diminished, we are satisfied at once of the feeble functions of the three systems, pulmonary, capillary, and nervous, since it is on the combined energy of these that the formation of animal heat in the economy mainly depends. Not only are we apprized of this diminished temperature by our sensations, but we also learn the fact by the application of the thermometer to a part of the body, under the tongue, to which the water has not access. Even for some time after leaving the bath, and when we feel a glow of preasurable warmth, the temperature is still

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less than before immersion*: showing how profound was the sedative impression on the nervous system produced by the cold of the water."

Our authors representation of the opposite effects of the cold bath on the robust and the feeble, is worthy of particular attention, not merely because it is true, but because it is also peculiarly important in practice.

"General experience confirms the correctness of this view of the effects of the cold bath. We find that the sanguine and robust, in whom the animal heat is habitually great and rather in excess, are they who can use it with the most comfort and advantage. If had recourse to in early life, it furnishes a very good test of the innate vigor of the individual; the robust child will probably bear well the application; he will often thrive *while* using it, though it may not be *on account* of using it. But the thin, delicate, and feeble infant whose temperature is already too low, and whose functions react imperfectly under any depressing agency, will be permanently and prejudicially affected by cold immersion. The example of Spartan and Welsh mothers and nurses, together with occasional speculations of theorists, should weigh little in these cases against our knowledge and experience directly obtained from physiology and daily observation. The actually less animal heat of children, and the greater readiness with which they part with it, ought, at once, to satisfy us of the impropriety of still further reducing it, and of enfeebling by cold the sources of its supply. The highly pernicious operation of this agent on the young of all animals, by laying the foundation for slow lingering disease and glandular obstructions, where it does not directly prostrate the powers of life, has of late years been very fully set forth by many writers†. It is more particularly prejudicial in those cases of feeble circulation arising from organic deficiencies in the structure of the heart or lungs, in which the cold bath has been often employed as a tonic. It is difficult to conceive how there ever could arise such a singular perversion of language and contradiction in reasoning, as to call a tonic that agent which directly lessens all the powers of life, which checks so promptly various discharges, the avowed results of excitement, and prior to the administration of which, the first condition inquired into is whether the individual have strength enough for reaction."

Dr Bell considers the range of temperature from 50° to 70° of Fahrenheit, to be sufficient for all the purposes of the cold bath. Having settled the principles, on which this important remedy is to be recommended and used, he proceeds to examine it in a more practical point of view, and details the various circumstances, under which it may be applied for the removal of disease. As a preliminary to this, he gives the following view of the several forms of the cold bath.

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*Currie.

†Drs W. F. and M. Edwards: Drs. Villerme, Flourens, Fontanelle, Trevisano.

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"The different methods by which the water is applied to the body may, also, be as well mentioned here as in any other place. 1. The bath proper, or by *immersion*, answers well enough for those whose vigorous health, or excited state of body and superabundant heat allow of frequent and habitual recourse to it. 2. *Affusion*, or pouring the fluid over the body, is a briefer and less trying application in regard to the abstraction of animal heat, although the unavoidable inequality with which it touches the surface gives a greater shock and tremor than the bath proper. The shower bath comes under this head. 3. *Ablution* or *sponging* affects the body less harshly than either of the other two methods, since the fluid is applied so very temporarily, as to be soon vaporized by the common heat of the skin. But if the operation be frequently repeated, a considerable reduction of temperature by continued evaporation may be produced, and the skin be rendered comparatively torpid. A great advantage attending ablution is, that it admits of local employment, so that we need only to wet the particular portion of the skin on and through the sympathies of which with other parts, we hope more immediately to operate. The application to the skin of wet cloths or lotions acts in the same way as sponging. 4. *Douching* or spout bath is the local use of water by means of a canal or tube and is capable of acting very powerfully on the part to which it is applied."

Our author speaks judiciously, and like an experienced practitioner, of the uses of the cold bath in what are called nervous diseases, of which he makes two classes; "the one consisting mainly in morbid sensibility of the nervous system, the other in continued irritation of this system transmitted from other parts, such as the stomach and liver." In no case however should the remedy be employed, where there is a *coolness*, much less a *coldness* of the skin. Under such circumstances, it always does harm. Its use is recommended to those persons, "who, though enjoying what is called full health, are liable to colds, rheumatic pains, and stitches, from any slight exposure to cold or moisture." It renders them more impassive to vicissitudes in the atmosphere. Another very important class of diseases in whose treatment the cold bath is recommended, is that of those in which there is a perceptible augmentation of vascular action, and of temperature. The author's views on this subject, will be best communicated in his own words.

"The *diseases* in which cold water has been applied externally, under professional directions, are numerous, but, in respect to their essential character, not very diversified. They are all marked by symptoms of augmented and morbidly excited action of the sanguiferous system, or at least of the capillary parts of membranous tissues, and are accompanied with excessive evolution of caloric,

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as we see in *fevers*, so called by systematic writers, *hemorrhages*, and *inflammations*, internal as well as external. The most enlightened, and, it is to be hoped one may add, numerous portion of the medical profession, now recognize in the regular application of cold an important auxiliary to, and on occasions a substitute for blood-letting. I shall not enter here into any retrospective view of the causes, whether from false theories among physicians, or ignorant prejudices, though still the result of false theory among the people at large, which so long retarded the general use of cold baths in fevers. One might suppose that this remedy would have been immediately adopted, as part of the reform operated by Sydenham; and that the cooling regimen was but very imperfectly adhered to, when, with the admission of cold and fresh air into the apartments of the febrile patient, was not coupled the administration externally and internally of cold fresh water to his body. The practice of bathing in fevers, though adopted occasionally at different times and in various countries, was never fairly introduced into curative medicine in a systematized shape, until the publication of the work* of the late Dr. Currie of Liverpool in 1797. This gentleman refers to some successful trials of cold ablution in fever made by Dr. Wright as far back as 1777, and also by Dr. C.'s colleague, Dr. Brandreth. Dr. Jackson of the British army published his success with the remedy in 1791. The first time of Dr. Currie's employing the affusion of cold water was on the occasion of a fever in the Liverpool Infirmary, which broke out on the 9th of December 1787."

Then follows an interesting account of the beneficial employment of cold water, in febrile complaints, by several physicians of eminence, both ancient and modern. This being too long to be extracted entire, we shall venture to quote only the following part of it.

"We shall give at once some of the details of the practice of Samoilowitz as illustrative of the true value of the remedial action of cold in febrile diseases. The first case which he cites is that of a young girl sixteen years of age, who, on the second day of her disease [the plague], exhibited mortal symptoms—universal tremors, and fainting on any attempt to sit up, continued stupor, involuntary renal and intestinal discharges, and excessive menstruation; skin dry, acute inguinal pains, but no bubo. In this extremity the author directed frictions of ice at ten o'clock in the morning; the face and neck were simply bathed with cloths dipped in ice water. Scarcely was this process, which lasted about an hour, completed, when the whole surface of the body became of a lively red colour, and vapour rose from it like when one comes out of a bath. Some coldness and trembling were afterwards experienced, and the patient was well dried and put to bed. The frictions with ice were, on the reappearance of many of the symptoms, repeated at two o'clock in the afternoon and at ten in the evening. On the next or third day of the disease, things were

*"Medical Reports of the Effects of Water, Cold and Warm, as a Remedy in Fever and other Diseases, whether applied to the surface of the body or used internally."

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nearly stationary: the ice frictions were repeated four times, and cold acidulated rice water given internally. On the fourth day the symptoms were somewhat abated: a bubo began to rise: the frictions were used four times. The drink was cold water acidulated with a little elixir of vitriol. There was henceforward a gradual amelioration of the symptoms until the eighth day, when the skin became dry, the pulse harder, fuller and more frequent, probably owing to the liberal use of bark on the preceding day. The frictions had still been employed, but less frequently. Now cloths dipped in ice water were freely rubbed over the surface. The following day found her once more convalescent. In place of the bark, a glass of wine was allowed her at dinner. On the sixteenth day from her first seizure, she had entirely recovered. Before recourse was had to the cold applications, the chief thing prescribed on the first day was an emetic, which was repeated in the evening. The result of its operation was not very flattering, and we are left fairly to infer, that the active and curative means in this case, from the morning of the second day of the disease, were the frictions with ice and cold acidulated drinks.

The next case detailed by Samoilowitz was of a young man seventeen years of age, on whom, in addition to many symptoms of a very grave character, there appeared a petechial eruption. The frictions of ice were practised on him until his skin became red and he began to tremble with cold. There would seem to be some contradiction in this part of the narrative, did we not bear in mind that the redness was here the result of the mechanical action of rubbing, while the chilling influence of the ice was, notwithstanding, finally displayed. This patient entirely recovered on the seventh day. The only means of cure additional to the ice frictions, mentioned by the author, was an emetic administered on the first day. Carbuncles appeared on this person, which on the fourth day began to slough.

Samoilowitz seems to have foreseen the probability of his cold treatment being usefully applied to other diseases having any analogy to the plague: and his anticipations have been fully verified. In forms of fever in which the evolution of heat is excessive, the skin acrid and hot to the touch, either partially or entirely, the brain affected with delirium or stupor, thirst urgent, tongue either dry and furred, or red and shining, or darkly incrusted, cold immersion or affusion, and, still more frequently, cold ablution or sponging have been found signally efficacious. Nor are we at this time restrained by the fears entertained by Currie of the prejudicial effects of the cold bath in fevers with local inflammation. Without entering into minute pathological investigations, or giving my own creed, in detail, of the origin of fevers, it is sufficient to say, that on our autumnal remittents, whether in the first, or what is sometimes called inflammatory stage, and in the second, or typhoid, or congestive, there are unequivocal symptoms, at times of gastritis, at others of gastro-enteritis, and again of arachnitis and cerebritis—and sometimes of all these conjoined.—Now in these diseases we can have no hesitation, when the skin is of an exalted temperature not only to sponge the surface freely with cold water, or to immerse the whole body in the same, but also to apply pounded ice, or cloths dipped in ice water, to the region more particularly excited and phlogosed, and in which the heat

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is greatest, as to the head and to the epigastric region. Not unfrequently the temperature of the surface is so unequal that neither cold immersion nor affusion would seem to be indicated, and yet on occasions both have been employed with success. Here, however, the safest plan, and that recognized by experience as the most efficacious consists in the local application of cold. It may happen that while the carotids and temporal throb with painful force, and the face is flushed and head excessively hot, the feet are at the same time cold.—In such a case, cloths containing ice, or dipped in ice water, should be kept to the head; the feet being moderately stimulated either by warm pediluvia, frictions or sinapisms. Similar applications are required in certain cases of gastric fever, or at least in fevers in which gastric symptoms predominate; such as great heat in the stomach, and of the skin of the epigastric region, tenderness and often pain on pressure, dry parched tongue and fauces. When the morbid heat is felt all over the abdomen, and the other symptoms also present, an excellent adjunct to cold ablution is cold enemeneta, or what the French and Italians would call internal douche. If our prescriptions of cold bathing in fevers be not more frequently followed by decidedly beneficial results, the cause must be found in an oversight of the consensus at this time between the skin and gastric intestinal surface, and of the fact that the irritation, indicated by excessive heat, dryness and suspended secretion of the external surface, has for counterpart nearly the same state of things on the internal. Symptoms then, not less than the cravings of the patient, seem to call for the administration of simple cool or cold fluids for drink, as imperiously as for bathing. The practice of Cirillo at Naples in what was then, and is too often now, vaguely called malignant fevers, was to give the patient no other drink than water cooled by the addition of snow: a pint or two were directed every two hours for several days—seven, eight and ten. During this time, no kind of aliment was taken, and when finally allowed, it was of the lightest kind; such as panada and the like. Hiccup supervening was only met by the free ingestion of the snow water, and found to be relieved by such a drink. So soon as sweat supervened, this beverage was omitted, or given with great reserve. The same precaution in the use of the cold bath is of paramount importance. We may not feel inclined to carry the watery regimen to the extent practised by Cerillo and the Spanish and Neapolitan schools; but it must, at the same time, be admitted, that physicians are singularly inconsistent in their practice, when they direct cold water to be applied to the skin, with the view of moderating excessive action of its capillaries and morbid evolution of caloric, and yet administer stimuli in the shape of cordial draughts, and juleps, and also tonics, to the gastric mucous surface, which is at this time equally a sufferer with the skin from inordinate capillary excitement. The obvious symptoms furnished by each surface, the cutaneous and digestive mucous, the admitted consensus or sympathy between them, the general sameness of effect, both of heat and warmth applied by means of water, ought all to guard us against the pernicious error of exciting the stomach, which is in a state of not less excessive irritation than the skin, to which however we deem it right to apply sedative and cooling means. The disappearance of internal heat and thirst, and a less

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dry and parched tongue after cold immersion or affusion, and, *e converso*, after drinking cold water, the softness and even sensible perspiration on a skin hitherto of a dry acrid heat, are evidences both of the sameness of morbid condition of these two parts in febrile diseases, and guides for a correct method of curing them. A still farther confirmation of this view is found in the salutary effects of injections of cold water into the lower portion of the intestinal canal. These often of themselves, allay thirst and remove the morbid heat of the skin."

Our authors whole detail, which is extensive, respecting the efficacy of cold water, in the cure of diseases of this description, is highly worthy of the attention of the Profession. Of its use in eruptive complaints, he speaks as follows.

"The false pathology so long prevalent respecting eruptive diseases in general, and more especially those of the acute exanthematous kind, has led to very erroneous modes of practice, among which stands conspicuous for its mischievous effects the free use of cordials and other stimuli, and external heat. It was alleged, that it was necessary to bring out on the skin the morbid and peccant matter, which, if pent in, would kill the patient, or produce, at the least, the most dangerous disturbances of internal parts. Our present improved knowledge of the state of the membranes, and the order and succession of their morbid changes, teach us that in proportion as any one of the three surfaces, pulmonary mucous, digestive mucous, and cutaneous, is irritated, the others are proportionably disturbed in their functions: and that the means of moderating the excitement of one of them, in acute disease, is to allay that of the other. Hence we find, that irritation of the stomach precedes the eruption on the skin of small pox, and that in proportion to the intensity of the former, as in drunkards, debauchees of either sex, or where intemperate stimulation has been erroneously had recourse to as a preventive, that the latter or cutaneous eruption is more unseemly, unmanageable and malignant. The chances, in such cases, are also greater, that the lining pulmonary membrane will become affected with pustules of small pox resembling those of the skin—a result which I have often witnessed in those dead of this formidable disease. If, again, the skin, when thus covered with eruption, be stimulated by much clothing and hot air, the state of the pulmonary and digestive mucous membrane, that is to say, the pulmonic and gastric symptoms will be aggravated. I speak now of the acute form of the exanthemata, when all the sympathies are direct and active. The treatment of these maladies ought, one would suppose, to have been long ago based on a theory which is the direct summing up of morbid phenomena. But the onward march of truth is slow. Isolated facts in therapeutics abounded, but they were, in a measure, valueless until they had been collected, and arranged, and illustrated by sound physiology. Upwards of a century ago the internal use of common cold water in scarlet fever, small pox, and measles; and instances of the efficacy of this simple means to restore repelled eruption and bring on sweat were pointed out*; and yet to this very day the tradition-

Febrifugum Magnum, or Common Water the best Cure for Fevers, and probably for the Plague. By John Hancocke, D.D. Rector of St. Margaret's, Lothbury, &c. London, 1723.

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al faith in exclusively internal drugging and external heat maintains its ascendency with the crowd—the great and little vulgar, including many a physician.

Of later years we are, however, not without examples of the success attending the use of cold water to the skin, in measles. Among the most recent accounts of this nature is that given by Dr. Thaer, a Prussian Physician. In an epidemical visitation of measles which occurred in the neighborhood of Berlin during the autumn of 1825, this gentleman directed the use of ablution with cold water and vinegar in sixty-eight cases. Out of these, there was but one death, and that was of a person in whom there were pulmonary tubercles, and in whose case the ablution had been practised contrary to the advice of the physician. Contrasted with this favourable result, was the fact of eleven deaths out of fifty-two sick of the same disease, but on whom the remedy had not been used. It was remarked, that the children who had been bathed were, for the most part, perfectly cured in the space of eight days; the desquamation was less extensive and more rapid in its course after the ablutions; the convalescents exposed [contrary indeed to Dr. Thaer's orders] did not experience, on that account, any inconvenience, although they had some remains of cough. When the irritation of the lungs had lasted some time, copious expectoration supervened after the use of the cold lotions: and when the pulmonary disease was in this incipient state, it was cured without expectoration so soon as the functions of the skin became regular. In three patients, the eruption was observed to come out immediately after the use of the lotions; although, prior to this, there had not been the slightest evidences of it; and whenever the eruption appeared, the other symptoms were considerably moderated in violence.

The conditions for prescribing cold ablutions in these cases were, 1. That the temperature of the body of the patient should be above 98° Fahrenheit, and that there co-existed restlessness and shortness of breath. 2. That the water for ablution should be colder in proportion as the body of the patient was hotter. Dr. Thaer was, in this respect, regulated by the table of Froelich which he always carried about with him, together with a small thermometer, the bulb of which he placed under the axilla of his patient. 3. That sponging or ablution was never to be resorted to when the little patient was in a tranquil state, or perspiring*."

Next follows a full statement of the writers opinion of the use of cold water in *hemorrhages*, from which we deem it our duty to quote.

"Physicians, participating in the notions of the vulgar, that the blood was driven to the internal organs by the application of cold to the skin, were long deterred from the free use of the cold bath, in *hemorrhages*. Popular experience had very early shown the good effects of cold application in bleeding from the nose,—and ought to have been sufficient to expose the fallacy of this hypothesis. Still the extended use of the remedy to other forms of internal bleeding was slow, and looked upon as hazardous in the extreme. Reasoning from the

*North American Medical and Surgical Journal, Vol. VIII, pq. 414, 415,

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obvious phenomena produced by cold bathing which I have already detailed, we cannot *a priori* fail to satisfy ourselves, that, consentaneously with the diminished action and temporary torpor of the skin, are similar states of the mucous membrane of the nose, lungs, stomach, intestines, bladder and uterus, on which, respectively, take place epistaxis, hemoptysis, hematemesis mælena, hemorrhoids, hematuria, and hemorrhagia.

Cold, applied by means of wet cloths to the back of the neck or to the scrotum, is a popular and efficient remedy for stopping epistaxis or bleeding at the nose. Darwin, be it said incidentally, expresses his belief that the epistaxis of elderly people most frequently attends those, whose livers are enlarged or inflamed by the two frequent use of fermented liquors. Among other means of relief, he mentions plunging the head into cold water with powdered salt hastily dissolved in it.

In *hemoptysis* or spitting of blood from the lungs, the cold bath, so long deemed a hazardous application, has been tried by several distinguished practitioners with the best effects. The knowledge of its efficacy in this case has been gained probably in an empirical manner—if we consider the erroneous notions prevalent regarding the operation of cold on the internal organs. But all doubt ceases by our observing that, simultaneously with the torpor of the capillaries of the skin induced by the cold bath, is that of the minute vessels of the pulmonary mucous membrane.—The collapse of the extremities of the blood vessels causes a necessary coagulum and consequent mechanical obstruction to the flow of blood: there is besides quiescence of the nerves—diminished or abolished sensation, and less afflux of blood to the part. It is obvious, however, that for the cold bath or ablution to be of marked benefit, it must be of so low a temperature and continued so long, as that it may exert a permanently depressing action on the hitherto morbidly excited capillaries of the lungs. If the remedy be of such short continuance to the skin as merely to suspend, without directly lessening the function of calorification in the part, and its vascular excitement, the reaction will be considerable, and the capillaries more distended than before. I have directed cloths fresh dipped in well water, of 52° Fahrenheit, to be applied to the chest of a patient afflicted with hemoptysis, and have witnessed the good effects of the cold in arresting the flow of blood without any accompanying or subsequent inconvenience. Others have had sheets wet with cold water rolled round the chest. Giannini, among other cases, cites the one of a young man seized with spitting of blood, whom he caused to be immersed, for about a minute at a time, in water made colder by the addition to it of ice; this operation was repeated three times in the twenty-four hours, and with a speedy and happy result. He very properly directs a preference to be given to the period of the fever and of the flush accompanying the discharge of blood. But we need not necessarily wait for or expect always the cutaneous excitement. We must depress, beyond what is pleasurable or any ways comfortable, the cutaneous capillary tissue, in order to act sympathetically on the pulmonary mucous capillaries from which the blood is discharged. If by frequent returns of the hemorrhage, the patient have been much enfeebled, we may substitute affusion or ablution, in the manner already advised for immersion—to

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which Giannini recommends the additional treatment by frequent and copious enemeta of cold water, and cold accidulated drinks. Currie says, that he has found hemoptysis may be stopped by immersing the feet in cold water, and perhaps this may be done still more certainly by a permanent application of cold to the genital part. He found the most powerful effect to be produced by immersing the body up to the pubes in cold water, a practice which, he adds, he can from experience speak of, as often safe and efficacious in this disease."

The same remedy is recommended in "vomiting of blood, and in hemorrhagy from the bowels, and hemorrhoids or piles, and uterine hemorrhagy." In these the bath may be either general or local, according to the particular character of the complaint. A further statement is given of its uses in burns, the sun-stroke, poisoning by narcotic drugs, such as opium, henbane, and stramonium, and in convulsive and spasmodic diseases. In all these affections, it is pronounced beneficial, when judiciously administered. "Obstinate constipation and stoppage of urine have severally been removed by cold affusion—dashing cold water on the abdomen, in the first case, and on the pubes, in the second." So have "inflammations of the joints, especially when produced by external violence or spasm." Here the accident should be recent, and the swelling and pain of the injured part considable.

This interesting chapter closes with an account of the uses of cold water in surgical practice. And, in our author's opinion, they are indisputable and great. The following extract, under this head, though long, will reward the reader for the trouble of perusing it.

"To surgeons the local use of cold water offers a valuable auxiliary in the treatment of *dislocations and fractures*, and more particularly in the cure of *wounds* and *ulcers*. French military surgery was the first to formally acknowledge the great utility of this remedy, and to show its superiority over the farrago of applications with which vain learning had at different times tortured the wounded soldier. Ambrose Pare thought himself abundantly rich, when he became possessed of the secret of preparing a wonderful Italian Balsam (*oleum cutelorum*), which was to heal all kinds of wounds. But when he saw simple water produce equally wonderful cures with those which he obtained from the use of his balsam, he could neither conceal his disappointment nor mortification; and he thought there must be something supernatural in such surgery as this, for that reason, he at first refrained, on account of religious scruples from adopting it. In an age of superstition such prejudices need not surprise us,

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the more especially when we learn that it was common to attribute the success of the water practice to peculiar sympathies or magical incantations, which could only be wrought by a privileged few. The Latin essay of Michel Angelo Blondi on water as a newly discovered remedy in gun shot wounds (1542) served only for a moment to fix attention to the subject. The view taken of it by this author was too natural—he spoke merely of simple water, which could not be supposed to interest the people, nor produce in them the same wonderment and confidence in its curative powers, as conjured or magical water. In this respect we do not find that mankind have been much altered in their credulity and love of the marvellous. Tell them of the salutary and sanative properties of pure water, and they smile incredulously, perhaps scornfully. Render it impure by some impregnation, either mineral or vegetable—or vinous or alcoholic—then call it aqua mirabili or balm of Gilead, or any unmeaning but yet sounding title, and it is eagerly sought after, purchased with much silver or fine gold, and swallowed with a faith that works prodigies in the way of cures, or averments of cures, which are just as useful to the conscientious compounders and venders. Gabriel Fallopius of Venice, and after him Felix Palatius of Trebia, more properly called by his Italian name Palazzo, endeavored to do away with the mummery of quacks and conjurers, and to exhibit simple water as a vulnerary meriting the attention of the regular surgeon, and to be employed of varying temperature, according to the nature of the wound. Joubert and Martel in France, exerted themselves in the same spirit, and with such success as to obtain for the practice the formal sanction of the University of Montpelier. But nature and common sense were not long allowed to bear sway. Van Helmont with his sympathetic dressings—Giclenius with his magnetic cures—the devotees with their plaster from the *hand of God*, gradually cast the aqueous practice into oblivion; or if it were had recourse to, some wonderful mixture was introduced into the water, such as the powder of Sir Kenelm Digby, which had all the credit of succes, due, in fact, to the simple fluid. In Italy, indeed, owing to the warmth of the climate and the instinctive necessity of frequent recourse to water for the purposes of ablution and drink, the aqueous regimen in diseases and wounds was less corrupted by the jargon of the schools or the tricks of mountebanks. Lamorier, in France, attempted once more to direct the attention of his countrymen to the subject, in an essay "On the use of Common Water in Surgery." By a fortunate coincidence this publication appeared at the time when all France, and even Europe, was made acquainted with the wonderful success of the practice of the case of the Duke of Orleans, who was cured of a wound of one of his hands, (which at first seemed to threaten the most serious consequences, and even to require the amputation of the arm), by the sole and free use of water by immersion and affusion of the part affected. Were the remedy less simple and natural, and to be obtained with less facility, I should not think it necessary thus to show the revolutions of favour which it has undergone in the professional world—nor to cite in its support the names of Sancassani, Caldani, and Bonneken, whose sage efforts were, however, insufficient to to preserve it a place in clinical surgery. It fell into neglect, if not into disrepute, for nearly a period of thirty years.

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Danter in 1780, published a valuable essay on this subject, which abounds in sound precepts and erudition. But it is doubtful whether his labours would not have been as unsuccessful as those of his predecessors, had not a fortuitous circumstance restored water to its former high rank among surgical remedies. Percy, the distinguished military surgeon, from whom I have borrowed the preceding details, tells the story as follows. On the fourth of June 1785, whilst trials were being made of the comparative merits of the canon of two rival founders, several artillerymen, among whom was Pichegru, then a common soldier, were wounded in different parts of the body. The chief surgeon, Lombard, a man of great merit, dressed these contused and lacerated wounds in the usual manner. A miller of Alsace, having heard of the accident, went to the governor of the province and succeeded so well in persuading him of his ability to render water an infallible cure for all sorts of wounds, that the worthy magnate gave orders to have the soldiers placed under the charge of the miller, and to be dressed exclusively by him. This surgeon by intuition immediately set about washing their wounds with river water, to which he added a pinch of powder, at the same time making divers signs, sometimes with one hand and sometimes with another, and muttering some unintelligible words. The powder was nothing but common alum. The additional virtues imparted to the water by such mummery may be readily appreciated. After the wounds had been well washed and bathed, the miller covered them with linen and lint, which were readily furnished by the ladies of the city, and which he dipped in the water, still gesticulating and uttering the magical words. For fear that the charm should be broken, we, says Percy, who was himself one of the surgeons of the garrison at the time, were not allowed to be present at the dressings, except at the twelfth, twentieth, and thirty-first days, in order to assure ourselves of the state of the wounds. These progressively amended, and were, without much pain or any other dressing than the *prepared* water, all cicatrised in six weeks—although immediately after the accident the surgeons hesitated about the propriety of amputating the hands of six of the artillerymen, which were most lacerated. The wounds were only exposed once a day; but every three hours they were wet with the water, moderately cold, which the miller called his *holy water*. Percy makes a remark, and it is an instructive one, that, as may naturally be supposed, there was some deformity of the hands and fingers of the wounded, for want of suitable support by splints and graduated bandages.

This lesson was not lost on the French surgeons, who found simple water in their hands as serviceable as that of the miller with all his charms and secret powder—while their entire treatment was more successful than his, on account of their using water either cold or tepid, according to the condition of the wound, and of their calling in the aid of posture and splints, to prevent pain and deformity. It is in this way that true science ever shows itself superior to empiricism. Percy thus early acquainted with the vulnerary properties, of water, did not fail to make liberal use of the remedy in the campaigns of the French armies, during the wars of the revolution. The waters of the chief rivers in Europe, from the Moselle to the Guadalquiver, have often alone formed the dressing of the numerous wounded soldiers of these armies. In Egypt

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itself, Larrey found the river Nile to furnish a vulnerary to the most terrible wounds. Professor Kein of Austria, while praising the use of water in the treatment of wounds, has erred in claiming for himself the honour of discovery."

Chap. V. is on Sea Bathing, and abounds in matter useful to be known. We deem it less important, however, to the practitioner of medicine, than the last chapter, for various reasons. Few persons comparatively can have recourse to Sea Bathing, the accurate management of the process is much more difficult than the management of common cold bathing, and most of the benefits of the former practice, can be derived from the latter, when properly directed. In their general principles and bearings, the two processes are much alike. In some respects however they differ; and their differences are thus summed up by our author.

"If we merely had regard to the temperature of sea water, we should consider immersion in it as simply cold bathing; but there are circumstances connected with the act which modify materially its effects. Sea bathing is usually preceded by some exercise, a walk or a ride to the beach; it is accompaned by some muscular exertion—struggling against the waves, or, in the more robust, by attempts to swim: with others again, the whole affair is attended by a dread of danger, which powerfully affects the nervous system, and causes hurried breathing, palpitation, and increased rapidity of the circulation. The immersion also is in a fluid largely impregnated with salts. Add to these, exposure to often a cool and keen wind from the sea, which on our coast must of course be easterly, and we can readily conceive that sea bathing presents a more complex problem for solution than the mere use of a cold bath."

Again:

"But there is another way, distinct from the effects of mere temperature, in which the skin is affected by bathing in salt water; and this would seem to depend on the slower evaporation of a saline than a simple aqueous fluid; and the incrustation on the skin of saline particles, and consequent mild stimulation of this surface by these particles when subjected to the common friction of the apparel. That such incrustation is really formed on the skin in consequence of bathing in the sea, one may easily satisfy himself by applying the tongue to any part of the body, even after several days have elapsed from the last time of bathing.

This slower evaporation and the deposition of saline particles, after immersion of the body in sea water, will probably serve to explain the admitted fact, that persons, such as fishermen and sailors, whose occupations expose them to the various inclemencies of weather, are less liable to be injured by being soaked with salt water than with rain. Even people of more delicate habits observe that they are less susceptible to take cold after being wet with salt than with fresh water. Captain Bligh, in his narrative of his astonishing passage across the Pacific ocean in an open boat, makes the following observations:

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"As I saw no prospect of getting our clothes dried, I recommended it to every one to steep, and wring them through salt water, by which means they received a warmth that while wet with rain water they could not have; and we were less liable to suffer from colds or rheumatic complaints." In another place he says: "In the morning the rain abated, when we stripped, and wrung our clothes through the sea water as usual, which refreshed us wonderfully." "

From page 172 to p. 180, our author offers a number of judicious and well timed remarks on the "*Manner of Sea Bathing*;" and, from page 180 to p. 193, on the "*Time of Bathing*." With these matters, which are much more important than they are generally accounted, and which we regret that a want of space forbids us to lay before the reader, that portion of the American public, who resort annually to the sea shore for health or pleasure, will do well to make themselves acquainted. For this purpose we must refer them to the pages of the work just indicated.

The cousideration of the "*Curative effects of Sea Bathing*," commences in page 193. We are concerned that a want of room forbids us to quote at large the very sensible and interesting observations, which Dr. Bell here offers, on the *true* meaning of the terms "languor, and debility or weakness," or perhaps we should rather say, on the *real condition* of the system, to which those words are generally applied. We venture to assert that, if not in ninety-nine cases in the hundred, at least in a vast majority of cases of disease, that condition is misunderstood or overlooked. Hence great mischief necessarily results. Of all the terms employed in medicine, that of "debility" has been the most destructive. In instances altogether innumerable, it has long led, and still leads to modes of practice directly the reverse of those which ought to be pursued. The consequence has been, death, on a frightful scale, where correct knowledge and sound practice might have saved life, or scenes of suffering and permanent infirmity worse than death. On these grounds we recommend to the profession an attentive perusal of Dr. Bell's remarks.

The chief diseases specified by him, as likely to be benefited by Sea Bathing, are *Scrofula*, in its several forms, *Hysteria*. *Chlorosis*, *St. Vitus' Dance*, *Hooping Cough* in the se-

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cond stage, some forms of *Asthma*, *Aphonia*, and *Febricula* arising from confinement, and the "harrassing cares of business or study." Certain complaints likely to be aggravated by sea bathing are next pointed out. These are "Inflammations of internal organs, as of the lungs, liver or digestive canal, marked by pain and regular daily returns of fever, with a somewhat active and tense pulse."—"Diseases of the skin of an acute or sub-acute character, are often aggravated by sea water—hence, in acute herpetic eruptions, and scorbutic sores, and erysipelatous affections, this remedy is not admissible. In those on the other hand of a chronic character, with dry scurfy skin, sea bathing will give great relief, and with suitable regimen contribute largely to a cure."

"They, whose chests are weak, who have a dry tickling cough, or who occasionally complain of pain in the breast, or are subject to slight discharges of blood by coughing, ought to avoid our sea shore, that is a line of coast, exposed to the easterly wind, which universal experience shows to be so eminently hurtful all over the world, to persons either predisposed to consumption or labouring under this disease."

We shall extract from this chapter but one paragraph more, which our author himself has quoted from Dr. Buchan, expressing his approbation of it.

"The following remarks of Buchan are so applicable to many persons in our own climate, that I shall transcribe them without comment. "There is a peculiar species of catarrhal affection which attacks many people, especially those who reside in great towns, towards the latter end of summer. This complaint is characterised by an increased secretion of the mucous in the bronchiæ, which the patient is perpetually endeavoring to bring up by a short hacking cough. This being a voluntary effort, it rarely occurs during the night. The pulse is quick and feeble, and the body becomes emaciated. This disease, which may be termed a chronic catarrh, appears to be the consequence of the heat of summer relaxing the vessels diffused over the internal surface of the lungs, so that they pour forth the fluids secreted by them in augmented quantity. Having myself experienced repeated attacks of this complaint, I may be permitted to state, that for my own case I could never discover any remedy but a change of air; and have generally found that, after having breathed the air of the sea for twenty-four hours, the cough has not even once recurred. And I can add with truth, that I have occasioually recommended the same plan to many others in a similar situation with equally salutary effects."

(*To be Concluded in our next No.*)

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ART. VI.—*Select Medico-Chirurgical Transactions; a collection of the most valuable Memoirs read to the Medico-Chirurgical Societies of London and Edinburgh, &c. &c. Edited by Isaac Hays M. D. Philadelphia. E. L. Cary and A. Hart*, 1831.

Edinburgh Medical and Surgical Journal. Cholera Number. February, 1832.

The American Journal of the Medical Sciences. No. XIX. Philadelphia, 1832.

The Western Journal of the Medical and Physical Sciences. Edited by Daniel Drake M. D. &c. &c. and James Finley, M. D. No. XIX. Cincinnati. 1832.

The Boston Medical and Surgical Journal. Vol. VI. Boston, 1832.

The American Journal of Science and arts. Conducted by Benjamin Silliman, M. D. L. L. D. &c. &c. Vol. XXII. No. I. New Haven, 1832.

THAT the activity, enterprise, and productiveness of the present have no parallel in preceding ages, has been so often repeated, as to have passed into a trite and proverbial remark. Yet, stale and commonplace, as it may be deemed, it is impossible not to recur to it occasionally, when we hourly recognise its truth and feel its force. Look where we may, the fact presses on us from every quarter. The immensity of the fleets which now cover every ocean and sea, far from having been realized by our forefathers, a hundred years ago, had not presented itself to their boldest imaginings, or even to their dreams. Yet these are but the representatives of other improvements equally vast. The mechanical arts connected with ship-building and equipment commercial and warlike must correspond to them, else they could not be erected; agriculture, manufactures, and other

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modes of gain must be on a similar scale, else they could not be provisioned and freighted; and without equal advancements in navigation and seamanship, they could not be conducted in safety to every point, where there is water to float them. Nor have the fine arts lagged far in the rear of their associates, in their progress toward perfection.

In this productiveness, so flattering, on the score of industry and intellectual developement, science and letters have abundantly participated. As relates to those pursuits, in common with all others of acknowledged usefulness, the world is becoming peopled with *real working men.* Idleness and ease are virtually proscribed. They are no longer the badges of gentlemanliness and nobility, but of sloth and insignificance. No man can long maintain a high standing without doing something to deserve it. All therefore are growing industrious. None is ashamed to labour in his vocation, be his birth and breeding what they may. Even females are beginning to take pride in activity corporeal or mental; and kings themselves will be compelled to follow so sound an example, or lose their power. So general and ardent is this ambition to do something useful, and enjoy the reward of it in reputation, or gain, that every one throws into the common stock the result of his labours. Hence the myriads of productions of different kinds that are issuing from the press.

This wonderful increase in the number of writers, has altered materially the character of their works. No one now gives birth to a quarto, much less to a folio. He dreads to bestow on it the time requisite for so large a performance, lest he be anticipated, on the subject of it, by some one of the cloud of contemporary writers, and thus forego both profit and fame. Besides; authors now are compelled to come more directly and briefly to the point, than they did in former times. They must write closely and clearly, to *exhibit their subject,* not learnedly and diffusely, and often puzzlingly, to exhibit themselves. The reason is plain. They would not, and indeed could not be read, did they write volu-

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minously, on account of the immense augmentation of the number of books.

But, notwithstanding the descent made by writers to octavo and duodecimo forms, and all the compression of thought, and brevity of expression, of which they are capable, there are but few persons, who have leisure to read throughout more than a very small portion of the works that are now written. Nor, had they even the necessary leisure, have they the means and the opportunity to procure them.

This new state of things called imperatively for new measures to meet it, and profit by it. And such is the happy adaptation of means to ends, throughout creation, that no real want remains unsatisfied—no chasm unfilled. This is as true, in relation to man, as to any of the other products of nature. The resources of society are amply sufficient, in all cases, to supply its demands. Hence began what deserves to be called a new era in letters and science. We allude to the establishment of Periodical Reviews.

This is quite a recent improvement in literature; and it is one of the most important that has ever been made. Without it, other forms of composition would lose much of their value. To a vast proportion of the world they would be useless. The reason has been already assigned. They could not be read. But, by the operation of well conducted Reviews, the reading of one man, who makes it his profession, becomes the reading of thousands, who are engaged in other pursuits. By ably analyzing works, and compressing their matter, he extracts from them their essence, and embodies whole volumes in pages. Of these pages he makes up his Review, distributes it to the public, and enables them to read and comprehend in an hour, what cost him a month. Few books are worthy to be read entirely through; yet none perhaps are without some useful facts, thoughts, or discussions. The reviewer, therefore, if he does his duty, presents his readers with an epitome of all that is valuable in them, relieving them from the trouble and weariness of long and painful research. The amount of knowledge thus communicated satisfies "the

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million," and is sufficient for all their ordinary purposes. By informing them of what is going on in the world, it enables them so far to keep pace with the onward march of things, as not to forfeit their cast, and become beings of by-gone times. And, to the few, who have leisure and a desire for further information, it indicates the sources from which they may derive it. It makes known to them books and their characters, to which they would otherwise be strangers. Thus does it aid them in the selection of their reading. In this way, not only is knowledge diffused and mankind enlightened; thousands and millions of our race are linked together, by the moral ties of an acquaintance, not indeed familiar, but notwithstanding useful, and which could not be formed in any other manner. Hence harmony and good feeling are strengthened and extended, and civilization is further matured. Even nations are thus bound together, by closer and stronger affinities, than could be otherwise produced. But for the influence of Reviews, all christendom would be much more broken up into disjointed fragments, than it is at present. All this is matter of notoriety to those who have reflected on it.

But this is not all that may be said on the subject we are considering. Reviews themselves are now so numerous, that the great body of the people can neither procure them all, nor read them, if they had them. For this also a remedy of no little efficacy is found. It is the *reviewing* of reviews; the extracting of the most valuable and appropriate parts of them, and issuing them in the form of Periodical Eclectics. Thus is a further condensation made of useful information, for the benefit of the world. Some of the most interesting and instructive papers we have seen in periodical journals have been made up in this way. It is therefore that we have resolved to follow occasionally so good an example; and we trust that our readers will be satisfied with our motives, and benefited by the measure. They will acquire by it we think, in a given time and a limited amount of reading, a more extensive knowledge of the present condition of medicine, and

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its progressive improvements, than by any other we could devise. It is thus alone that medical Journals can be converted into a sort of professional Encyclopedias, containing a rich compendium of the science.

The work which stands first at the head of this article is the first of a series proposed to be published by Dr. Hays of Philadelphia. In the judicious selection of the most valuable articles which appear in the transactions of the learned societies of Europe, Dr. Hays is rendering an important service to the American Faculty, since from the size and heavy cost of the original volumes, a majority of Physicians are forbid access to them if they did not feel repelled by the large amount of uninteresting matter which they contain. These transactions "are the repositories of the greater portion of the discoveries and improvements made in science, and access to them is necessary, not only to those who desire to consult the original sources of information, but to every one who wishes to keep pace with the progress of knowledge, since a long period necessarily elapses after their publication before these discoveries become incorporated in the systematic works."

It is the intention of the editor to republish not only the most valuable papers read before the societies of England, but also those which are published in the French and German languages.

This volume contains a variety of highly interesting matter, with which we propose to enrich a few of our pages. The article on "auscultation, the only unequivocal evidence of pregnancy" by John C. Ferguson, A. M. M. B. will be read with great satisfaction by the medical Jurist, as well as by all practitioners who are desirous of avoiding the mortification sometimes experienced from a want of sufficient knowledge in these delicate cases. That some more accurate test of this condition of the female system, than any now in the hands of the profession, is seriously desiderated, all writers on the subject, and all who have had experience in such cases admit. Dr. Darwall, a late writer on medical jurisprudence, declares

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that "there is no one invariable sign of pregnancy". Mr. Ferguson remarks on this, that for the last three years he has been in the habit of examining by the stethoscope every pregnant woman who presented herself under any circumstances, at either of the public institutions to which he is attached. And he adds:

"I have thus had opportunities of testing the value of mediate auscultation in such cases above one hundred times, and in every instance, with but one exception, I could detect either pulsation of the fœtal heart or placentary noise, generally both, after the patient had passed the fifth month of gestation, and in many, indeed the majority, before that period."

The following case, in illustration of this practice possesses so much interest that we give it entire.

"In November, 1827, a young woman, aged 22, applied at the Dublin General Dispensary for relief; she gave such an account of herself as induced me to think she laboured under the aggravated form of dyspepsia. She told me her menses were regular, that her abdomen, which I observed to be enlarged, was so only occasionally; indeed, such was the excellent arrangement of dyspeptic symptoms which she stated herself to labour under, that she completely blindfolded me. However on her third visit to the Dispensary, some incoherence in the account of herself, and, as will be readily imagined, no beneficial effects following the exhibition of the medicines ordered for her, excited my suspicion: when, as was my habit with pregnant women, I employed the stethoscope. The riddle was soon read. I almost immediately detected the heart of a fœtus, and also the placenta, nor, which is a matter of some moment in such cases, had the patient the slightest suspicion of the object of such an investigation. She received the announcement of her being pregnant with extreme indignation; indeed, this young lady's histrionic talents were of the first order, and such was her well-feigned agony at the very idea of her virgin innocence being even suspected, that had I not the positive evidence of my senses to confirm me in the opinion I had expressed, I should have felt extremely uncomfortable in the situation in which I found myself. I took some trouble to convince her of the impossibility of my being mistaken. Having obtained from her the address of her friends, despite her most urgent entreaties to defer the disclosure for some time, as by her own acknowledgment she was only in the fifth month, I communicated the fact to them, with all the palliation I could adduce, and with a good deal of difficulty quieted the storm of angry feelings, which such an announcement was well calculated to elicit. They forgave however, and promised to receive her."

The article on the "*Tendency to Calculous Diseases*," by John Yelloly M. D. F. R. S. &c. and one on "the infrequency

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of the disease among seafaring people" by Mr. Hutchison will probably prove most interesting to a majority of readers. It would seem that lithotomy continues to be a very formidable operation in England, and that the average mortality has not diminished greatly since the days of Cheselden. It may appear remarkable, but it is true, and in making the assertion no superiority of skill is meant to be claimed for American Surgeons, that the operation has been attended by a more uniform success in this country than in any other. In the absence of public institutions it is impossible, to supply the statistics upon which this remark is founded, without appealing to the results of private practice. We may however be allowed to state, that a few surgeons in Tennessee, most of whom were young and consequently without much experience, have operated for stone, within the few last years, in twenty five cases, on patients of both sexes and of all ages, and that not one has proved unfortunate. This is probably attributable to the extreme salubrity of our climate and the consequent vigor of constitution enjoyed by our people; but account for it as we may, the fact is as we have stated it.

"With regard to the mortality from the operation of lithotomy, the number of deaths in the Norfolk and Norwich Hospital, has been 89, which is a mortality of 1 in 7. 29 cases, from the institution of the charity. But it is creditable to the state of modern surgery, and to the skill of the present surgeons of that Hospital, that in the operations performed by them (which amount to near one third of the whole number from the commencement,) the proportion of deaths has been reduced to 1 in 8. 42, which differs very little from the average of Cheselden, whose improved lateral operation they follow."

The cases of stone in females have been rare in this country, and the operation when performed we have not known to terminate fatally in any instance. Yet it will be gratifying to the profession to learn that not only all risk of life, but all the usual consequences of the old practice, as incontinence of urine &c. are taken away by the process of dilatation.

"The number of female cases" remarks Dr. Yellowly, "in the whole, has been 31; the proportion, 1 in 20; and the deaths, 1 in 15½. But from the improved practice by dilatation, all risk of life in the abstraction of calculi from females,

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seems to be taken away. I have mentioned, in the Medico-Chirurgical Transactions, the removal from a female of a calculus of nearly 3¼ oz. troy, in weight, by spontaneous dilatation;* and some examples are given in the Philosophical Transactions, by Dr. Molyneux, Dr. Heberden, and others, of a similar kind: but it was not till of late years, that dilatation was employed to supersede the usual operation of lithotomy in women."

The following extracts contain valuable statements.

"The circumstances which occasion death after the operation of lithotomy, form an important and interesting subject of investigation to the surgeon; and I am inclined to think, that in addition to the unforseen and unavoidable occurrences, which sometimes succeed the very best exertions of surgical skill, there is something to be attributed to the constitutional shock of a great operation, under which the system will occasionally sink. It is however, a consideration, that may abate undue confidence from early success, on the one hand, and offer consolation and encouragement, under unexpected failures, on the other, that of two of the most distinguished contemporary lithotomists of this country, whose qualifications were of the most respectable kind, one lost 3 patients only of his first 50 operations, or one in 16⅔; and 1 in 4½ of the remainder, amounting to more than double, so as to reduce his average mortality to rather below one in 7: while the other lost 11 of his first 50 patients, or 1 in 4½; and in his remaining cases, which a good deal exceeded those in the former instance, lost only 1 in 13½ so as to render his whole average mortality rather less than 1 in 8.†

Recurrences of stone seem to be not very frequent; 14 instances, or 1 in 46 only, being found in the records of the Norfolk and Norwich Hospital, of the operation having been performed twice on the same individual; 3 were below 14, and 9, (of whom 2 died) above that age. The production of the second calculus took place, in 4 of these cases, within 1 year; in 5, within 2 years; in 3, within 3 years; while in the 2 remaining cases, the operation did not become again necessary, till after a lapse, respectively, of 7 and 10 years.

It does not appear that a second calculus is necessarily of the same character as the first. In the child from whom the first known specimen of cystic oxide was extracted, (that analysed by Dr. Wallaston,) the disease returned;

* Vol. vi. p. 574.

† The examples occurred in the Norfolk and Norwich Hospital; and the gentlemen alluded to, were the late Dr. Rigby (formerly senior surgeon to that establishment) and the late Mr. Martineau. I lament to say, that the death of the latter gentleman has taken place since my paper was laid before the Society. The whole number of Dr. Rigby's hospital operations was 106, with 15 deaths; and of Mr. Martineau's 147, with 17 deaths. Mr. Martineau dated his principal success (Medico-Chir. Trans. of London, Vol. XI. p. 402.) from the time he employed the blunt gorget, according to Cheselden's method; Dr. Rigby, as far as I have had an oportunity of ascertaining the point, always used the blunt gorget.

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but a second operation was not submitted to. The child died, when a calculus of a different character from the original one, was found in the bladder.

A curious example of a similar kind, was shown to me at Cambridge, by Mr. John Okes, one of the surgeons to the Cambridge Hospital, of a calculus of cystic oxide having a lithic nucleus, which was removed from a boy of 4 years old, and was followed, in a short time, by the formation of another of fusible exterior, with a lithic interior, which made a second operation necessary in less than a year from the first. So speedily may the character of the animal process be changed, on which the formation or augmentation of urinary concretions depends."

With regard to the comparative frequency of calculous diseases among the lower and higher orders of society, it is necessarily very difficult to obtain accurate information; but from facts stated by Dr. Y. it would seem that the advantages are in favour of the latter class. Mr. Martineau operated on but ten private patients during a period in which he operated upon 111 public patients; and as the former were generally wealthy, and the latter poor, the proportion would appear to be 1 of the former to 11 of the latter.

On the subject of the causes of calculous diseases the following remarks, though not perfectly satisfactory, have much interest.

"A constitutional predisposition to the calculous diseases, unquestionably exists in certain families. Dr. Prout, in his valuable work on Urinary Diseases, mentions an instance of a calculous tendency in three continuous generations: and I am acquainted with a family, where the grandfather, a man of active habits living in the country, was twice cut for the stone, and died from the second operation; the father was also cut: and two of the sons have exhibited an unequivocal calculous disposition, from an early period of life. I may also observe, that a few examples have occurred at the Norfolk and Norwich Hospital, where more than one individual of a family has had the disease, and undergone the operation.

The large employment of ill-fermented farinaceous food, which marks in some degree the habits of the commonalty of Norfolk, may perhaps be regarded as favouring the occurrence of calculous diseases; but a much coarser, and worse fermented material, in rye, barley, oats, and various mixtures of peas, with wheat or barley, has been, and perhaps still continues, to a certain degree, in use in Scotland, and the North of England, without being productive of such an effect. There are doubtless, however, various collateral circumstances that have not been sufficiently ascertained, which may have the power of modifying the effects of any particular description of food; and it is even very probable, that the laxative tendency of some of the coarser kinds of farinaceous aliment, may have a salutary influence, and obviate the disadvantages which might otherwise arise from their employment.

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The cyder counties were at one time supposed to be peculiarly liable to calculous complaints; but so little ground is there for this opinion, that Hertfortshire seems to have a very peculiar exemption from that malady; and Devonshire, not to have more than the average cases of other counties.

"In the instances which I have mentioned, it would therefore appear, that the tendency to produce calculous complaints, is greater in towns than in the country: and if this should prove to be the case generally, it would seem to indicate the existence, in children more particularly, of a connection between some diathesis which prevails in towns, (probably the scrophulous) and the tendency to the secretion or deposition of lithic acid, on which the origin of urinary calculi so much depends. I have not had it in my power to ascertain whether the greater disposition of towns to calculous complaints, applies more extensively than I have mentioned. I think it probable, however."

Mr Hutchison in his interesting paper on the infrequency of calculus among seafaring people, mentions, as the result of much inquiry, that out of the mass of individuals who compose naval service, "only *eight cases* have occurred in a period of sixteen years; and of these, two were boys about fourteen years of age, who had labored under symptoms of stone for some years previously to their admission into the service, and to which they had recently entered expressly for the purpose of deriving benefit from our magnificent institutions." Another was a marine who had been at sea a few months only, and the "length of service afloat" of all the rest could not at all be ascertained. On the probable cause of this immunity the writer offers the following suggestions.

"From Dr. Marcet's and Dr. Prout's remarks it would appear, that an active and healthy state of the digestive organs is one of the most effectual preventives against the formation of calculi. May it not therefore happen, in the instance of sea-faring men, that the peculiarities of their regimen, and especially the great quantities of muriate of soda they habitually take with their food, contribute to produce this effect?* Or in other words, shall we be justified in imputing to the stimulus communicated to and maintained in the whole chylopoetic viscera by the muriate of soda, a power to counteract the aggregation of calculous matter in the urinary organs independently of any direct chemical agency?

"The life of a seaman is one of great activity, and often of considerable labour and exertion. I have frequently observed in common with other officers, that sailors never fail to empty the bladder on the first symptoms of distention; and the facilities afforded them, as far as regards unmixed society and locality

* See Dr. Marcet's Essay, page 176, and Dr. Prouts valuable paper in the eighth volume of the transactions of this Society, pages 543,544,545.

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favour greatly this salutary habit. It is also of importance to notice, that no description of people are less subject to dyspepsia,* or more prone to strictures in the urethra.

"People of sedentary habits, on the contrary, offer great facility of aggregation and increase to any minute calculous depositions in the bladder where they gradually acquire magnitude by continued accumulation of fresh matter, so as to render the distress and acute sufferings of the patient intolerable, and compel him to submit to the operation of lithotomy as the only mode of obtaining permanent relief: and hence it is, that lawyers and other studious men who sit much, and are in habits of retention, are said to be more subject to the disease in question, than those devoted to the more active scenes of life and greater muscular exertion.

"From various parts of the preceding premises, then, we may with some degree of probability infer, that animal food, combined with a certain portion of the muriate of soda, in conjunction with farinaceous aliment, on which seamen principally subsist, are favourable to the prevention of calculous aggregation.

It is inquired by Dr. Yelloly in his paper already noticed, whether, as there appear to be a larger proportion of calculous cases in towns than in country districts particularly among children, "it would not seem to indicate the existence of a connexion between some diathesis which prevails in towns, (probably the scrofulous) and the tendency to the secretion, or deposition of lithic acid, on which the origin of urinary calculi so much depends." And the sea-air and the sea-bathing to which sea-men are subjected, while they are the best remedies for scrophula, are among the means, Mr. Hutchison supposes, by which the calculous diathesis is removed.

That sea-men do enjoy this comparative immunity from this class of affections, Mr. H. does not rely exclusively upon his own observation and experience to prove. Mr. Cromar, house surgeon of the Royal Infirmary remarks:

"The cases of calculus which have occurred in the hospital during the last ten years, amount to 68. Of these there were 13 boys, 5 women, and 50 men. Of the men, 15 followed different trades, 33 were employed in agriculture, and 2 were fishermen. The ages of the boys were from 2 to 14 years: the youngest of the women was 23, and the eldest 60. One of the fishermen was 43, and the other about 50. The ages of the men varied from 45 to 71."

Of 31 hospital cases reported by Mr. Smith of Bristol, *not one* had ever been at sea. Out of 100 operations for stone

*See various parts of Murray Forbes's work on gravel and gout.

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performed by himself, and 15 in which he assisted, Mr. Crichton reports that *three only* were seafaring persons. Two of these had labored under the affection previously to going to sea, or had quit the service before it came on. During twelve years, Dr. Macfarlan reports, that there had been admitted into the Infirmary of Glasgow 30 cases of stone, but that no seaman was of the number. Of all Sir Astley Cooper's cases, in Guy's hospital, two only belonged to this class, and of these one had labored under symptoms of stone from infancy. In the Hull Infirmary, Yorkshire, one case of stone in a seaman is reported. The patient died at the age of 66 with the stone in his bladder, "the weight of which was 27¼ ounces avoirdupois!" No seaman with stone, according to Dr. Yelloly, was admitted into the Norwich hospital in eleven years, during which period 122 cases of this disease occurred.

We shall close our notice of this interesting volume with the following notable paragraph:

"During this inquiry, I have been informed, with much pain and regret, that in some districts in Scotland where calculous diseases are very prevalent, that the surgeons are averse to the performance of the operation of lithotomy, lest their reputation should suffer, in the event of failure: and that, therefore, the patients are either transported to a distance to be operated upon by some celebrated lithotomist, or else they die in misery with stone in the bladder."

How strikingly does this contrast with the condition of the art in our *backwoods* country, where a county can scarcely be found destitute of an operator for stone, and where lithotomy, from the uniformity of success enjoyed by surgeons of every age, and every grade of experience, has almost ceased to be regarded as a *capital operation*.

The Edinburgh Medical and Surgical Journal is one of the most able periodicals of the day. It is made up of original articles, and critical analyses of new works, very much in the style of similar publications on this side of the Atlantic. But it exhibits, as we should anticipate, riper scholarship and more matured observation than we generally meet with in the journals of our own country.

The last number is a supplement to the work, put forth

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between the regular periods of publication for the purpose of diffusing widely a knowledge of the causes and cure of malignant Cholera, which at that time was committing great ravages in Scotland. It comprises 290 pages which are filled with a discussion of this subject. It is impossible for us at such a distance from the scene of its ravages, and with a hope that it may be averted from our borders, to enter with a very keen interest into its investigation. The prospect, however, of its reaching this country seems to increase, and we cannot be too much on the alert in providing the means for a successful defence. Since it seems to have lost its regard for condition in life, and to fall upon the wealthy and the poor alike, as it is doing in Paris, our hope that the general comfort of our land would prove a shield against it is in a great measure taken away.

The English treatment of the disease in India consisted in the immediate administration of 20 grains of calomel in the form of powder, followed by 60 drops of laudanum and 20 drops of oil of peppermint in two ounces of water. In the early stage blood was drawn, and the body kept warm by friction, with hot spirituous liquids, warm baths, and warm bed-clothes, and the system roused by internal stimulants. The calomel and opium were repeated every hour, or seldomer, according to the urgency of the symptoms, in the same or diminished doses. By the French Physicians sulphate of magnesia was employed instead of calomel, but with less success. In some cases nitric acid was applied to the præcordia, so as to produce blistering—Solid opium appeared in some cases more effectual than the tincture in allaying the vomiting.

In Orenburg it was treated by "an abstraction of blood, proportioned to the patient's constitutional condition," followed by calomel, camphor and opium. At the same time the patient took for the vomiting and diarrhœa, with great advantage, citrate of potass, in some aromatic water, together with a little opium. As external remedies, "warm moist fomentations by means of aromatic herbs, or dry fomen-

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tations by means of clay, oats or salt, heated as hot as could be borne," were chiefly employed. Injections of starch with laudanum were made use of when the diarrhœa continued obstinate. But where the disease was fully formed on the first visit of the physician, venesection was the remedy chiefly relied on, not for its antiphlogistic powers, but to remove the accumulated blood from the internal organs, and withdraw it to the surface and facilitate its motion. The report of the Medical Board of St. Petersburg concludes with these words. "In the list of remedies, blood-letting, calomel, opium, warm fomentations, and frictions occupy the principal place. Cajeput oil, ammonia and muriatic acid have not manifested the good effects which had been expected from them."

In the epidemic of Moscow blood-letting was less efficacious, and the warm bath was only useful when employed in the early stage of the disease. Opium, in moderate doses, was employed with advantage, but it seemed injurious when given too boldly. In some cases *nux vomica* was administered to the extent of from one fourth to one third of a grain, which seemed in its operation to be analogous to opium. Calomel in the doses already mentioned, when conjoined with opium or *nux vomica*, was the chief remedy in the internal treatment of the disease.

In Poland, general blood-letting, calomel and opium were the remedies chiefly relied on; and *nux vomica*, with warm peppermint tea in many cases was considered a valuable adjuvant. Other practitioners thought that calomel and opium protracted convalescence, and therefore substituted ammonia in doses of four, five, or six drops every hour. Dr. Enoch, of Warsaw, who of 43 patients lost but seven, and these all old people, the most successful practitioner of the city, pursued the following plan.

"This gentleman bled most of his patients,—then gave two grains of calomel with a quarter of a grain of opium,—next carbonate of potass saturated with lemon juice,—and next ten grains of rhubarb every hour after the vomiting ceased, and till the bowels were freely moved. Sinapisms were likewise applied to the limbs and stomach, and occasionally laudanum was given in the dose of fifteen drops. Dr. Enoch observed, that, if the heat of the body was

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restored under this treatment, without an improvement in the expression of the features, the prognosis was always unfavorable. He likewise pointedly notices the fact to which so much attention has been deservedly paid of late in Britain, that a common bilious diarrhœa often preceded the proper attack of cholera for three or four days, and that by treating this with Dover's powder and a few drops of laudanum, the cholera was prevented from being formed."

Drs. Lawrie and Molison treated the disease as it appeared in Sunderland, Newcastle, and in various parts of India, in the following manner.

"All the miscellaneous compounds of camphor, opium, ipecacuan, calomel, aromatic conserves, and numerous other drugs, he (Dr. Lawrie,) properly condemns, as extremely pernicious; and all saline or drastic purgatives he represents as utterly inadmissible. After placing the patient in bed between blankets or flannel, he orders half an ounce of castor oil, with 15 or 20 drops of laudanum, followed after free operation by 30 drops more, or one grain of opium. A sinapism or blister to the abdomen is required in every case in which the discharges continue, and blood-letting should be resorted to if the patient be robust or plethoric,—a measure found to be very beneficial among the pitmen at Seghill. If, notwithstanding these measures, collapse threatens, a mustard emetic is recommended as giving the stomach relief, without the depressing effects of other remedies of this nature: after which 10 or 20 grains of calomel, with as much laudanum or opium as the state of the patient will safely permit. *Lastly*, Mild injections, with or without opium, are to be administered according to circumstances."

The collapsing stage was treated by a salt or mustard emetic to rouse the stomach, bleeding to relieve the heart, and obviate congestion, and large doses of calomel and opium for the purpose of allaying gastro-enteric irritation. The actual cautery was applied along the lower part of the spine, galvanism was tried, and at Gateshead a tobacco enema was employed, of which, the Editor of the Review remarks that he "cannot understand the *rationale* at all, unless it be to augment the deadly force of the disease."

The treatment employed by Dr. Molison was more simple, consisting chiefly in the "restoration of heat by means of hot friction, hot vomits, hot injections, hot stimulating fluids, and blood-letting." The vomit used was "hot water, mixed with mustard or salt," which at once removed the cold fluid from the stomach, and gave a powerful stimulus to the whole system. He did not try electricity and galvanism, and of calomel he speaks doubtfully in the collapse of the disease. He seldom

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employed opium, regarding it as very dangerous. Hot brandy and water in his hands answered a much better purpose. To the tobacco he has a decided objection.

But after all it may be doubted, whether the experience of other nations will avail us much in the management of the complaint—whether, modified as it will be by climate and modes of living, our faculty will not find it necessary to resort to the systems of cure which have proved effectual in our more malignant diseases. This opinion we find is at least gaining ground, and is likely to be strengthened by the general failure of the treatment employed by European Physicians.

The *American Journal of the Medical Sciences* is conducted with distinguished ability. Published in one of the most literary cities of our country, and supported by a number of her most gifted and best educated physicians, its reputation is deservedly high as well abroad as at home. The number for May contains an unusually large amount of interesting matter. Article I. is a case of extirpation of the Parotid gland, by Dr. Mott. On dividing the tumor after its extirpation, not a vestige of the original organization of the gland could be observed." The inner surfaces had the appearance of firm tar, and imparted a black colour to the fingers when touched." The patient died, it was believed, of constitutional melanosis, though no examination of the body was made to ascertain its character.

A number of cases by Dr. Wells compose the second article. Some of his operations are of frequent occurrence, but others are rare, and all evince science and skill on the part of the surgeon. The following is singular and interesting.

"Case X. *Hypertrophy of the Tongue.*—A daughter of George Robert, of Lexington, aged six years, was brought to Columbia for professional assitsance in May, 1829, with an enormous enlargement of the tongue; otherwise she was in good health and a fine robust girl.

The following are the dimensions and state of the tongue at the time: length as it remained at rest and hung down over the chin, from the superior incisors to its apex, two and a half inches; circumference just in front of the lips, six inches; breadth from one angle of the mouth to the other, a little more than two

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inches. It had undergone a very considerable change in structure, was much more dense than natural, and not subject to change in its dimensions by the action of its own muscles, or if at all, very slightly so; its motions otherwise were sufficiently free: upper surface smooth: inferior covered with the cicatrix of old ulcers, several of which, where the tongue rested upon the aveolar processes of the lower jaw, but imperfectly healed; colour darker than natural. Within the mouth the tongue had undergone no apparent change, except a moderate increase in width and thickness. She had formerly suffered much from inflammation and ulceration of the mucous membrane of the tongue, but this difficulty had been obviated for the last six or eight months by keeping the organ covered with cloth bags, which, becoming immediately saturated with the mucous secretions of the parts, afforded a complete protection from the external air. If these bags were omitted for a few days, the surface became very sore and painful. The front teeth had been displaced from the lower jaw by the long-continued pressure of the tongue. The lower lip was folded downwards. The anterior portion of the superior maxillary bone had undergone a slight curve upwards, the inferior a much greater curve downwards, so that while the back teeth came in contact, the front were an inch asunder, or rather the space between the upper teeth and the corresponding aveolar processes below was something more than an inch. She managed to eat by placing the morsel of food between the back teeth with her finger; fluids were introduced into the mouth through a tube, such as the spout of a coffee-pot: could articulate with a good deal of distinctness.

We could obtain nothing very satisfactory of the history of this case from the father, by whom she was accompanied. Her mother had died during her early infancy, and she had been placed with her grandmother away from him—the parties not of the most intelligent class. It seemed, however, from the father's statement, that the difficulty commenced when she was about eighteen months of age, with an attack of what we suppose to have been common glossitis: the tongue became suddenly swollen, and protruded from the mouth—continued in that state for two or three weeks, when the swelling gradually subsided, and it was again brought within its proper limits. During the next two and half years she had repeated attacks of a similar character: worse, and of longer duration in cold weather. All that he could say of the constitutional symptoms at this period, was, that "when the tongue swelled the child cried a great deal, and was very sick, and the old lady was in the habit of dosing her frequently with salts."

For the last year or two there seems to have been no particular change in the dimensions of the tongue, save a gradual increase corresponding with the general growth of the system.

Not considering it within the scope of medical science to bring the tongue back to its normal state, and being confirmed in this opinion by that of several of my medical friends, the removal of that part external to the mouth was proposed and acceded to, and would have been done by one stroke of the knife but for the refractory character of the patient and the timidity of the father. The following plan was resorted to, and is on the whole perhaps the best operation

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in such cases and with such patients, but in adults where the surgeon can have the convenient use of all his resources for controlling hæmorrhage, there can be no objection to free excision, the least painful mode of operating.

The child having been freely purged, and kept on gruel diet for two or three days, a seton needle, half an inch broad, armed with a double ligature, was passed through the tongue from below upwards, cutting transversely; the ligatures were carried obliquely backward, and firmly tied on either side, so as to give to the remaining tongue a somewhat pointed appearance. The gush of blood on passing the needle through the tongue was very considerable, but almost instantly ceased on the ligatures being tied: twenty hours after the strangulated portion was removed by two strokes with a bistoury, from the centre outwards in the course of the ligatures, which was followed by a few feeble jets of blood from the lingual arteries, and a slight oozing from the substance of the tongue for a few minutes. There was considerable irritation and constitutional disturbance after the application of the ligatures, which required a small bleeding and an anodyne; these symptoms all disappeared soon after the final excision.

The dressings consisted simply in the application of a pledget of lint moistened with a saturated solution of chloride of lime, renewed three or four times in the twenty-four hours, and a handkerchief tied over the mouth to protect it from the air. On the fourth or fifth day the child was walking about in the open air, and appeared to suffer very little: at the close of the second week the wound was nearly healed, and she was taken back into the country, with a request that she might be brought to Columbia again in four or five weeks, which was accordingly done. On her return the wound was perfectly cicatrized, and the body of the tongue reduced to its natural dimensions. She had full command of her lips; and it was very evident that the jaws would soon be brought into their proper relation to each other by the natural action of the muscles. She could articulate with sufficient distinctness, and give all the letters of the alphabet, their proper sounds.

Four months after this her father called on me, and said that his daughter had fully recovered—the jaws had lost their curvatures, all the teeth coming in contact. Mr. R. called on me again a few weeks since, and informed me that his daughter enjoyed good health—had felt no symptom of the old complaint in her tongue since her recovery from the operation."

Observations on the use of the malt poultice in mortification and foul sloughing ulcers, with cases illustrative of the efficacy of the practice, by Dr. Williams, and a case of wound of the abdomen and section of the intestinal canal, successfully treated, by Dr. Pitcher, compose the 3d and 4th articles. The latter case was treated by Dr. P., upon the plan of Ramdohr. The following is an abstract of the case.

"On examining the protruded viscera, it was ascertained that the knife in passing across the abdomen had divided the ileum diagonally, and separated two inches of the lower portion from the mesentery. The fold of intestine in

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contact with this was cut on its convex side two-thirds across; two other convolutions were transpierced, and the left iliac colon was partially opened in the direction of its circular fibres.

The first step in our attempt to restore the displaced bowels, after giving ii. drams tinct. opii, to relieve the patient from the sensation of sinking, was to secure the bleeding branches of the mesenteric artery, (three in number,) by single thread ligatures, the ends of which were cut close to the knots. My next object was to bring together the dissevered ends of the ileum. This I effected by passng a ligature through the upper portion from without inward, thence into the lower part and out again, including half an inch of intestine in the stitch, then returned it through the upper end from within outward, drew it close, and cut the ends short off. Three sutures of this kind made the intus-susception complete. The other openings were closed by continued sutures, (except that of the colon, for which a single stitch was sufficient,) the ends of which were left long, and so tied as to hang within the gut. Thus much accomplished, the intestines were sponged clean with warm milk and water, gradually and without impediment returned into the abdomen. Some pieces of the epiploon which had been injured by the knife were cut away, and the external wound closed by half a dozen turns of the continued suture. A slight hemorrhage still continued from the spermatic sheath. I managed by position to conduct the blood out of the wound, applied a compress wet with spirit and water, and kept it in place by a modification of the T-bandage."

The next article is a "Report on the state of the Medical Department of the Baltimore Alms-house Infirmary, for the year ending the 39th of April, 1831, by Thomas H. Wright M. D. Physician to the Institution." The report, though ably drawn up, contains nothing of very deep interest for the great mass of Medical practitioners. The diseases of such an institution, occurring among the old, the dissipated, the indigent and the infirm, from whatever cause, present a very different character from those which appear in healthy country situations. Many of the disorders of hospitals, in fact, are almost unknown in the country, where its inhabitants are well fed and inhale a pure atmosphere.

The 7th article on "Sedation," by Dr. Hodge, without containing any thing new in practice, is a philosophical and interesting paper. The term *sedation* is adopted by Dr. H., "as the state alluded to, is the result of any *sedative* cause. Sedation stands directly opposed to irritation. As the latter expression is employed to designate a morbid excitement, so sedation is a morbid depression—the phenomena of life being

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depressed below their healthy standard. It is a diminution of action, whether organic or animal."

The causes of sedation are direct or indirect. The direct causes are, 1st. Abstraction of accustomed stimuli, as of caloric from the general system, of blood from the heart, of oxygen from the lungs, of food from the stomach, &c.

"2d. *Sedations.* It has been much disputed whether we possess any direct sedative agent, as something analogous to excitement, either precedes or accompanies the depressing influence of this class of agents. Without discussing an objection which seems to be hypercritical, it is sufficient to remark, that numerous agents will very speedily depress vital action, so as to endanger or destroy life, and hence, for all theoretical and practical purposes, are truly sedative. Not to mention cold, already alluded to, under the first division of direct causes, prussic acid, digitalis, opium, cicuta, and other narcotics, as also certain mental passions, as grief, fear and despair, may be adduced as examples. There is much reason for supposing that many of the irrespirable gases, as carbonic acid, sulphuretted hydrogen, and also the effluvia from dead animal or vegetable substances, (idio, and koino miasmata,) have not only an indirect influence by diminishing the proportion of oxygen inhaled, but a direct sedative agency on the tissues concerned.*"

3d. *Mechanical causes;* as contusions, concussions, &c.

The *indirect* causes of sedation are probably more numerous.

1st. They include all the various and complicated *irritations* to which the human system is liable; for it is a general fact, liable to some exceptions, that irritation in one tissue or organ abstracts excitement from other tissues or organs. They hence occasionally suffer from this defect of excitation, (sedation,) thus indirectly produced by local irritants. Every practitioner is familiar with examples of this character; hence the coldness and bloodlessness of the extremities in acute inflammation of the brain, lungs, stomach, &c. &c.; hence the inactive state of the cutaneous tissue in many visceral diseases; the flaccidity of the mammæ and suspension of the secretion of milk in hysteritis or peritonitis, &c. the pallor and coldness of the surface in the diversified forms of neurotic diseases, &c. &c.

This fact, that sedation in one tissue is the common result of irritation in another tissue, is the foundation of the principle of derivation, or revulsion, so extensively useful in therapeutics, and is so frequently observed, that some pathologists have denied that a general irritation can ever exist, insisting that irritation cannot exist in one part without a corresponding diminution of excitement in another. Certainly the indication of "equalizing excitement," to use

*It is stated that sulphuretted hydrogen is fatal, when applied to the surface of the body and not inhaled, as dogs immersed in this gas while their heads were kept in a pure atmosphere perished.

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the language of the distinguished Rush, is one of the most important and constant presented to the clinical practitioner.

2d. Indirect sedation is also observed in parts for a long time subjected to irritations. This arises from the well-known law of the animal economy, that continual excitement is followed by exhaustion. Much exercise of the muscles, senses, and mind, is succeeded by an exhaustion, which demands rest and sleep for the recovery of their wonted activity. The intemperate man has organic, as well as animal life depressed after the influence of his accustomed stimulus, whether alcohol, opium, or tobacco, has subsided. When the organic actions have been unduly excited, diminution of action below the normal standard is usually observed, demanding comparative rest for its re-establishment. Thus every one is familiar with the relaxing effects of continued heat; the general vascular excitement, at first induced by the stimulus of caloric, being followed by comparative torpor. The surgeon often notices this diminution of action, in parts under the continued influence of warm poultices and fomentations, or from long immersion in warm fluids; the red, turgid, tense condition of the tissue, as induced primarily by the stimulus of heat, is succeeded by a pallid, relaxed, and shrivelled appearance, directly opposed to the former. So also when profuse discharges of serum, mucus, or pus have long issued from any surface, so much deficiency of excitement exists, that stimuli become necessary to restore the healthy or recuperative actions. Who has not observed large abscesses discharging much pus, without any effort at recovery, until irritating washes are employed?"

In the treatment of sedation the leading indication is to facilitate reaction, which is to be done, 1st. by removing the cause; 2d. by the judicious use of local stimulants; 3d. by general stimuli, where the system labors under general sedation; 4th. by evacuants, including general bleeding, which as they remove venous congestion, encourage the desired reaction.

Dr. Picton of New Orleans, believes that he has discovered, that the exclusion of light will prevent the "*pitting*" in small pox. His facts and reasonings make the 8th article, which is a short one.

The next article, on Arsenic, by J. K. Mitchell, M. D., is one of great interest and importance. Dr. M. is one of the most acute and discriminating chemists and physicians in our country, and the admirable combination of these characters is strikingly exhibited in his investigation of this subject, which calls at once for the pathological knowledge of the one, and the accurate science and mechanical tact of the other. In this paper he has arrived at several novel and impor-

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tant conclusions. 1st. That the temperature at which arsenic is volatilized "is a *red heat visible in the dark*, a degree of heat nearly three times as great as has been supposed by the author who rates it the highest." 2d. That the dark ring which condenses in the tube above the arsenic, is the true *sub-oxide* of that metal. Berzelius, it is true, had conjectured the true character of this ring, and remarks "that the sub-oxide is obtained in the reduction of arsenic; for that which sublimes in the first instance is *sub-oxide*, of which very thin coats show, by a transmitted light, a brownish colour." But, from all that was written before this paper of Dr. Mitchell's, a person engaged in detecting this poison, would not be able to derive any clue to an explanation of this black crust, which yet is uniformly present. This oxide is more volatile than the metal, always occupying a higher part of the tube. 3d. He has rendered it highly probable, that the arsenic odor is derived from this sub-oxide, and *not* from the vapor of the metal, as all recent authority declares. 4th. By the following experiment, he has shown, that the reduction of arsenic, deemed by able chemists perfectly decisive, cannot be implicitly relied on in the absence of all other proof.

"A little powdered cinnabar was, mixed with carbon, deposited in the sealed end of a glass tube, and held over the flame of a spirit lamp. In a few moments the "dark crust"* began to form. When sufficiently heated, the tube exhibited a brilliant metallic-looking ring, above that and continuous with it appeared a shining black ring, and over that could be perceived a white substance. So closely did these appearances correspond with those of a known arsenicated tube, that I distrusted the purity of the cinnabar, and could only assure myself of its true character by cutting off the tube, pulverizing the apparent metal, and observing that it was unreduced vermilion where lustrous, a black powder where jetty, and minutely distributed mercury where white.

Even when the quantity used amounted to several grains, the semblance was so strong as to deceive experienced chemists, although tubes containing arsenic were offered for comparison.†"

He concludes his paper with the following very judicious remarks.

"The more I examine the subject now before me, the more I become convinced that for the *ascertainment* of the presence of arsenic no single experiment

*Christison, p 180.

†The smaller the tubes the more complete the deception

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is suffcient, and that the appearance of even the best marked and most characteristic crust are not an infallible, or *alone*, even a good test of the presence of that potent poison.

Whatever may be the degree of chemical proof, it may, and often does, receive confirmation from the phenomena of the living case and the dead body; and the physician, who is a chemist, may arrive at a decision of the question, which, as a chemist alone, he could not determine. After all, however, the common distrust of scientific testimony is not ill founded. Extremes are said to meet, a truism illustrated by the fate of the subject before us, in which we see the confidence in the results of nice chemical research shaken alike by the prejudice of ignorance, and the power of a progressive philosophy. At one period scientific men trusted solely to the alliaceous odour; at another, to that and the tombac alloy: at another, to these and certain liquid tests. All these have been shown, by more careful research, to be liable to misconception, and an *experimentum crucis* substituted, supposed to be susceptible of no misapplication. *That* falls to the ground under the crushing wheels of an advancing science, leaving us, where common sense should have long since placed us, in an attitude of observation of *the whole ground* of each particular case, blindly confiding in no single proof, however strong, and yet reaching a justifiable and salutary decision upon the concurrent evidence afforded by a multitude of particulars, whose accidental coincidence would amount to a miricle."

The original department of this number of the American Journal is concluded with some observations by Dr. Atlee, of Philadelphia, on the use of Prussic acid in hooping cough, which appear to us judicious.

"The following is the course pursued. During the first, or what may be termed the inflammatory stage of the disease, I resort to the general depletory agents, if called on at all. Usually, however, parents seldom apply for medical advice until the second, or spasmodic stage, or that in which the *hoop* is clearly discerned. If, on inquiry, the bowels have not been freely evacuated, a full dose of calomel and rhubarb, according to the age and condition of the patient, is prescribed. If, to use the common phrase, "the child is much stopped up with phlegm," emesis is produced by antimonial wine, which, when judiciously prepared, I prefer to any other emetic. After this, the syrup is given as follows:—

For a child six months old, one drop of the acid to one ounce of simple syrup. A tea-spoon full twice a day. If no uneasiness, dizziness, or sickness is produced within forty-eight hours, the same quantity is given three times a day. From six months to a year, the same may be given four times a day.

From 1	to 2	years of age,	Hydrocyanic acid,	gtt. ij.	syrup, scruple.
2	3	do.	do.	iij.	do.
3	6	do.	do.	iv.	do.
6	12	do.	do.	v.	do.
12	15	do.	do.	vj.	do.
15	20	do.	do.	vij.	do.
20	30	do.	do.	viij. to x.	do.

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A small or large tea-spoonful being the dose in each case, repeated as often as close observation of its effects will warrant. I have never yet given it more than four times a day.

Having tried the imported acid, and found it entitled to little reliance, I have for the last six years prescribed that prepared in this city by our judicious chemists, FARR and KUNZI, according to the formula of Mr. BRANDE. It contains 4½ per cent. of pure prussic acid of GAY LUSSAC, and is therefore not so strong as that recommended by M. MAJENDIE."

The remaining portion of the number consists of reviews and selected matter—among the rest, of a laudatory notice of Jackson's Principles of Medicine, recently published in Philadelphia. This work will be reviewed in the next number of this Journal.

The *Western Journal of the Medical and Physical Sciences*, is the oldest publication of the kind west of the mountains. Its present senior Editor, in conjunction with the late lamented Dr. Godman, commenced it under another name many years since. Dr. Drake is singularly qualified for rendering such a work popular, interesting and able. The only difficulty under which he labours is that experienced by all who have attempted such publications in the west—the want of punctual, able contributors. The present number contains, among other matter, two papers from his pen, which, like every thing that he has published, are characterized by clearness and soundness of thought, neatness and perspicuity of style, and a practical and useful bearing. The first of these is taken from an ingenious little work of the author, lately published, on "Medical Education."—The other is on the use of emetics. The writer first enumerates the causes which have conspired to bring this class of remedies into comparative disrepute. He next describes their *modus operandi*, and finally points out the diseases to which they are applicable, and the rules which should govern their administration. —It is is a practical and interesting review of a familiar, but important subject.

The *Boston Medical and Surgical Journal*. This work is published weekly in the newspaper form. It is well worthy of the attention of practising physicians, not less on account

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of the variety of useful matter with which its pages are filled, than of the convenience of its shape, and periods of publication. It is impossible within the limits of this review, to present a perfect analysis of the matter contained in the numbers of this volume. The articles are generally short, and consist chiefly of selections from other works. We placed its name at the head of this article, mainly for the purpose of recommending it to the attention of our readers.

The *American Journal of Science and Arts*, is conducted by one of the ablest Chemists and Naturalists, and most elegant authors in our country. The work though not strictly medical, yet treats so ably of chemistry and natural history, which are closely allied to medicine, that we have placed it in the list of publications devoted to that science.

The present number contains a part of the report of Professor Hitchcock on the Geology of Massachusetts, examined under the direction of the government of that state. It is a paper full of interest. This example so nobly set by Massachusetts, we are happy to find, has been followed up by a western sister state. Prof. Troost who has been appointed by the Legislature of Tennessee to make a Geological survey of that state, is a gentleman in every way qualified for the task, and will, we have no doubt, execute it in a manner highly creditable to himself and beneficial to his country.

We must here close our notice of Periodical Medicine. We have not pretended to include in our list even all the Journals published in our own country; but have confined our remarks to those which have been received since the issuing of our last number.

In quoting from the Edinburgh Medical and Surgical Journal, on the subject of Cholera, it will be perceived that we confined ourselves to the *treatment* of the disease—a course rendered proper, as we conceived, by the extended discussion of other branches of that topic in the last No. of this Journal. We will only add, in conclusion, that the treatment of M. Majendie, which is reported to be enjoying unusual success in the disease as it is now prevailing in Paris, consists in the free administration of punch and hot wine.

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ART. VII.—*An account of some of the most important Diseases peculiar to Women.* By ROBERT GOOCH, M. D. *From the second London Edition, Philadelphia E. L. Cary & A. Hart.* 1832.

IN this work Dr. Gooch has made a valuable contribution to practical Medicine. It is the result of the observation and experience of a strong, sagacious and disciplined mind. The author has not made it up by pouring the contents of other volumes into his own, but has described faithfully and clearly, what an extensive practice in public institutions gave him ample opportunities of observing with accuracy. That our readers may have the means of judging of the work for themselves, we proceed, without farther preface, to lay before them such extracts as struck us most forcibly in an attentive perusal of its pages. It is proper however, to premise, that we do not hope to be able to compress every thing valuable in the work into so brief an abstract.

In the following passages there is so much of sound wholesome admonition addressed to young practitioners, that, although not strictly medical, we are sure we shall be doing our readers a favor by quoting them. Every physician who has been but a few years engaged in the practice, and who has cherished a desire to keep pace with the improvements in his profession, must have felt the importance of grasping the points of the works that he reads, or, in the quaint language of our author, of "squeezing out the juice, and throwing away the rind." Pupils in Medicine, who in the perusal of a work must proceed slowly in order to comprehend it, are not so seriously annoyed by the verbiage with which it is too much the wont of writers to encumber their matter; but to the active practitioner whose hours for reading are necessarily limited, it is a grievous evil.

"Your task will go on prosperously, the sooner you have ceased to read, and

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begun to observe and think: do not, however, attempt to dispense with reading, but dispatch it as speedily as is consistent with accuracy. Keep a note-book, read the most esteemed original writers on the most important subjects of your art, and while reading them note down briefly those points which you wish to remember, so as to have no occasion ever to look into the book again; provided you get the points of the work, the more briefly you do it the better; if you are skilful at this, you will find that a page will hold a pamphlet; and that twenty pages will often hold a bulky volume; if you read German, read Richter's Bibliothek Chirurgische, for he is the greatest master of the art of condensed analysis. Thus your manuscript volume will become a Bibliotheca of your branch of medicine, and you will never afterwards have occasion to consult the books themselves. There are some writers whom it would be wrong to abandon thus; master-minds, whom we return to again and again, not merely for the knowledge which they contain, but to observe how their minds worked, and the older we grow the the fonder we become of them; such in England, are Harvey on Physiology, and Sydenham on Medicine; but few such minds appear in any branch of knowledge; and with most of them, when you have squeezed out the juice, you may safely throw away the rind."

In the first chapter our author treats of the peritoneal fevers of Lying-in-women. A remarkable circumstance about this disease, he observes, is, that, where it is most prevalent, it is most dangerous. And he continues:

"It is not uncommon for the greater number of cases to occur in the practice of one man, whilst the other practitioners of the neighbourhood, who are not more skilful or more busy, meet with few or none. A practitioner opened the body of a woman who had died of puerperal fever, and continued to wear the same clothes. A lady whom he delivered a few days afterwards, was attacked with and died of a similar disease; two more of his lying-in patients, in rapid succession, met with the same fate: struck by the thought that he might have carried the contagion in his clothes, he instantly changed them, and met with no more cases of the kind. A woman in the country, who was employed as washerwoman and nurse, washed the linen of one who had died of puerperal fever; the next lying-in patient she nursed died of the same disease: a third nursed by her met with the same fate, till the neighbourhood, getting afraid of her, ceased to employ her. The disease has occurred in some wards of a hospital, the others being free from it; but after ventilating, cleansing, and painting these wards, they became as healthy as the others. Facts such as these have long led to the suspicion that the disease might be communicated from one lying-in woman to another in the clothes of the practitioner or nurse, or the furniture of a tainted chamber."

It would be illogical to infer from these facts alone that the disease under consideration is contagious. They seem to present a case of accidental coincidence, rather than to stand related to each other as cause and effect. In this

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country, which, on many accounts, is the most favourable in the world for judging of the contagiousness of diseases, a suspicion of the communicability of puerperal fever by personal intercourse, is scarcely entertained by a single member of the profession.

Puerperal fever is a variable disease, appearing with different grades of malignity in different years. This is clearly shown by the history of the complaint given by our author. Dr. Butter of Derbyshire, who practised in the year 1775, cured all his patients by 10 grain doses of rhubarb, and a spoonful of cordial confection every day. While Dr. John Clarke, a physician of equal eminence, found every plan alike unavailing in an epidemic in 1787. Dr. Hunter was in the habit of remarking in his lectures, that "treat the disease as you will, three out of four will die;" while Richter, with not greater science or experience, cured nearly all his patients by purgatives. "In Lowder's time it was observed that every woman who was blooded died. In Dr. Armstrong's time it was observed that every woman who was *not* blooded died." On this subject the following observations have much truth.

"Supposing many cases of a disease, which bore in general a striking resemblance to one another in the symptoms and appearance on dissection; this would naturally suggest as a strong probability that they would all be affected in the same way by the same remedies: but suppose that on applying these remedies to all these cases, with the same activity, at the same stage of the disease, and as far as can be made out, under the same circumstances, they produce different effects on different cases, some being relieved and recovering, others being made worse and dying; this would be more conclusive evidence of a difference between these cases, than the symptoms and morbid appearances were of their identity. The effects of remedies on a disease, if accurately observed, form the most important part of its history; they are like chemical tests, frequently detecting important differences in objects, which previously appeared exactly similar. How many diseases are there in which the symptoms are inadequate guides: in cases apparently syphilitic and apparently similar, some as soon as mercury affects the mouth, begin to mend, and rapidly recover; in others, the ulcers begin to spread; and so imperfect are the appearances as guides, that I have known the first surgeons in the profession giving opposite opinions about the same case, and a nose lost from taking the opinion of the majority. The local pains and constitutional disturbance which occur in feeble and bloodless persons, and which are aggravated by bleeding and othe evacuants, strikingly resemble the local pains and

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constitutional disturbance which occur in vigorous and plethoric persons, and which the lancet and other evacuants relieve and ultimately cure; yet how many years is it before the young practitioner learns that there are cases apparently so similar yet really so different, and how to distinguish them,—and how many practi tioners are there who never learn it at all! Symptoms and dissections can never do more than suggest probabilities about the nature of a disease and the effects of a remedy on it. A trial of the remedies themselves is the only conclusive proof."

In the disease as it prevailed between the years 1810 and 1820 the author found the following treatment successful.

"I now found that, provided I saw the patient within a few hours of the attack, I could generally arrest the disease. The mode of treatment was as follows. A vein was opened in the arm, with a wide orifice, so that the blood flowed in a full stream, and it was allowed to flow till the patient felt faint; the arm was then tied up, and her head was raised so as to encourage the faintness for many minutes. As soon as the faintness had subsided, she took from ten to twenty grains of calomel in a tea-spoonful of arrow root, and afterwards half an ounce of sulphate of magnesia dissolved in beef-tea or thin gruel, every other hour, until several copious evacuations were procured from the bowels. When the patient had thoroughly recovered from her faintness, from ten to twenty leeches were applied to the painful and tender parts of the abdomen; when the leeches had fallen off a bag long and broad enough to cover the whole abdomen, was stuffed with hot poultice which was spread so as to form a cushion nearly an inch thick; this was laid hot over the whole abdomen, and renewed so often as to keep up heat and moisture. If the patient complained of the weight of the poultice, the bag was stuffed with scalded bran. We found this application of infinite value, not only as a means of encouraging the bleeding of the leech bites, but also as a perpetual fomentation.

In the treatment of acute inflammation in the vital organs, the customary practice is to consider local bleeding as a milder means of effecting the same object than a general bleeding, and to postpone it till the stage for the latter is over. To me it appears that they are calculated to effect two different objects, both of which are necessary at the beginning of the treatment; the one to reduce the violence of the general circulation, the other to empty the distended capillaries of the part. As long as the pulse is quick, full and hard, it is in vain to take blood from the affected part: if we could completely empty its gorged capillary vessels, they would be instantly gorged again, whilst the heart and large arteries are injecting them with so much violence. On the other hand, after having reduced the force of the general circulation, the capillary vessels of the part often remain preternaturally injected: this I conclude from the fact, that the patient is often not relieved till local blood-letting has been used, and then is relieved immediately. Hence, as soon as the patient has recovered from the faintness occasioned by bleeding from the arm, leeches ought to be applied without delay.

I waited till the purgatives had operated fully, that I might know what im-

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pression the combined operation of general and local blood-letting and purging had produced on the disease, before deliberating about the employment of a second blood-letting. The common effect of these remedies was this: as long as the faintness lasted in the slightest degree, the pulse remained soft, and often slower, and the pain was much less, or ceased altogether: but an hour or two after the bleeding, when the circulation had recovered, the pain returned more or less, and the pulse regained much of its hardness or incompressibility. This state continued till the leeches had bled freely, and the purgatives had acted repeatedly and copiously. The state in which the patient was found after this, determined me whether or not to employ a second bleeding.

My two chief guides were the state of the abdomen and that of the pulse. If the abdomen was still painful and tender, and the pulse retained any of its hardness or incompressibility, or if the pulse was not so small and weak as to forbid a general bleeding, a vein was again opened in the arm, and the blood allowed to flow till it produced faintness, which was encouraged as after the first bleeding: on the contrary, if the pulse was small and weak, if the pain was gone and only soreness remained, I preferred a repetition of the leeches. Mere soreness without pain, and with a feeble state of the general circulation, is more surely relieved by local than by general blood-letting: and the best mode of employing it is by relays of leeches; as soon as the orifices of one set have done bleeding, to apply a fresh set, till the soreness and tenderness are gone. The rest of the treatment consisted in purging during the day by calomel and salts, the constant application of the bag of poultice or bran and leeches to the abdomen till all the tenderness was gone."

The subjoined remark conveys a valuable practical hint.

"I have repeatedly found myself, and seen others at a loss, when blood-letting having been carried as far as I dared, and reduced the general circulation to the lowest ebb, sufficient pain and tenderness were left to make me anxious about the patient, and have found a full opiate and a warm poultice over the abdomen remove the symptoms."

But the author is satisfied that *all* cases of this disease are not inflammatory, nor require the use of purgatives, bleeding &c. Sometimes the abdomen is tender, but the pulse is not quick or tense. A patient for example, takes a dose of salts and senna a few days after her delivery. It operates a few times, when the stools become frequent and watery, with severe griping, and the abdomen grows tender to the touch. The pulse, nevertheless, does not rise above 80, continues soft, and the skin also is cool. In such a case there is no great danger of going wrong; the slow soft pulse being a sufficient guide. Here the treatment is to consist of opium internally, and the application of warm fomentations to the abdomen.

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Again, a case presents in which the pulse is quick, and there is that group of symptoms which, attacking a woman a few days after delivery, are generally supposed to indicate inflammation of the peritoneum. But the previous and habitual constitution of the patient was one of great feebleness, the pulse is soft, and the blood when drawn exhibits an uninflamed appearance. In this again, relief is speedily obtained by fomentations and opiates. Bleeding and other evacuants, under such circumstances, are pernicious. The facts that are to guide here are, the softness of the pulse, coolness of the skin, the absence of all inflammatory appearances in the blood, when it has been abstracted, and the constitutional delicacy and sensitiveness which usually attach to such patients.

But the author believes that there is yet another form of this disease, which although it has the ordinary symptoms,—pain and tenderness of the belly, with a rapid pulse, is very different from the peritoneal fevers which prevailed between 1810 and 1820; "different in its duration, which is much shorter, in the way in which it is affected by blood-letting; and lastly in the morbid appearances discovered after death."

"This form of the disease, like the acute inflammatory form, may occur only occasionally or sporadically, when it is readily and speedily cured by opiates, fomentations, gentle aperients, and sometimes leeches; or it may become prevalent or epidemic, and consequently more malignant; in other words, more fatal and difficult of cure.

The most remarkable circumstance which the experience of the last few years has taught us about peritoneal fevers is, that they may occur in their most malignant and fatal form, and yet leave few or no vestiges in the peritoneum after death.

"The experience of the last few years has brought me to this conclusion: that the sanguine hopes which were entertained, a few years ago, that the peritoneal fevers of lying-in women are always of an acute inflammatory type, and always to be cured by early bleeding and purging, as they were not borne out by reasoning employed, so they have not been confirmed by subsequent experience."

The author in the conclusion of this chapter thus sums up the treatment.

"The remedies for the efficacy of which there is most evidence are, 1st, bleeding and purging; 2nd, emetic doses of ipecacuanha; 3d, opiates internally, and

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poultices externally to the abdomen; 4th, mercury given so as to affect the constitution; 5th, oil of turpentine.

I. There is a class of peritoneal fevers in which the affection of the peritoneum is acute inflammation, and that of the constitution is inflammatory fever, although this inflammatory state often lasts only a few hours.

"Thus, when the prevailing diseases are inflammatory, and are best cured by depletion, when the pulse at the beginning of the disease is vibrating, hard, or, although small, is incompressible, when the skin is not only hot, but dry, and when, after the treatment of a few cases, it appears that those have recovered best in which bleeding and purging have been used early and fairly, there is every reason to believe that we have lighted on an inflammatory epidemic, and that the depletion is the means on which we must depend for the cure.

"II. Emetics of ipecacuanha once so successfully employed by M. Doulcet, in the Hotel Dieu in Paris, have such strong evidence in their favour, that they deserve a fuller trial than they seem ever to have received in this country; the form of the disease in which M. Doulcet employed them, was that which occasions profuse effusion into the peritoneum. The conditions under which they ought to be given are these:—1. they are to be used at the instant of attack; 2. they are to be repeated every day till the symptoms are subdued; 3. in the interval, between the operation of the emetic, a potion is to be given, composed of oil of almonds, syrup of marshmallows, and Kermes' mineral; 4. the diet is to consist of nothing but linseed tea, or something equally bland and unheating.

"III. The power of mercury as a remedy for inflammation has been so clearly made out in inflammation of the eye, the liver, and the pericardium, and not only its power, but the inadequacy of blood-letting to overcome inflammation in these organs without the aid of this remedy, that it deserves a fair trial in peritoneal fevers. I have never given it systematically in a number of cases, but what experience I have is in its favour.

"The method of using it is to give two grains of calomel every two hours, until the gums become sore, or without this effect, until there is evidence that the circulation is drawn from the peritoneum to other surfaces, especially the bowels, the kidneys, and the skin; and this is attended by a subsidence of the disease, indicated by a diminution in the frequency of the pulse, a cessation of the pain, and the patient being able to turn in bed, and bear pressure. During the use of the calomel, opium generally requires to be used at longer intervals, as five or ten grains of the compound powder of ipecacuanha once in four hours. The symptoms which call for its use are severe pain, profuse purging, or a sinking in the general circulation. When the gums are sore, or the disease has yielded, the calomel should not be withdrawn suddenly, but given at longer intervals, or in smaller doses, and so gradually withdrawn. This is the way in which it has been used successfully by Dr. Farre.

"IV. There is a class of cases attended by pain and tenderness of the abdomen with a rapid pulse, which does not require bleeding, which does not bear it to the extent to which it is necessary in the inflammatory peritoneal fevers, and which is speedily and effectually cured by opiates internally, with hot

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poultices to the belly, aperients, and sometimes leeches. There is reason to believe that this form of the disease is present when the patient in her ordinary health is delicate and nervous—when the pain and tenderness have followed any irritating cause, such as severe after-pains, or a griping purge—when the pulse, although quick, is perfectly soft, and even weak, and this opinion is strengthened if blood has been drawn without relief, and without the signs of inflammation on its surface. The best way of treating these cases is to wash out the lage bowels by a very large glister, to give ten grains of compound powder of ipecacuanha every three hours, till the pain is gone, to keep the abdomen constantly covered with a warm linseed meal poultice, and after the pain has ceased, if the abdomen continues sore and the pulse quick, to apply leeches, and give a mild purge. When I doubt the nature of the case, I apply leeches at the beginning."

Chapter II. treats of the disorders of the mind in lying-in-women. They are induced by a number of circumstances. 1st. The peculiar state of the sexual system which occurs after delivery. 2nd. Or the exhaustion produced by delivery. 3rd. A disordered state of the nervous system; and 4th. weaning.

What is the morbid state of organization on which the disorder of the mind depends? This problem is to be solved, remarks our author, "by observing the causes which brought on the disease, the bodily symptoms which accompany it, the way in which it is affected by remedies, and the morbid appearances discovered after death." Of the causes reported by the author, a majority occurred in females who had been copiously depleted before, or at the time of delivery, or had been exhausted by uterine hæmorrhagé, or enfeebled by nursing, and were pale, and without preternatural heat, or quickness of pulse. And hence he concludes that it is a state quite different from phrenitis, requiring a different mode of treatment. This is thus laid down.

"I. The constant attendants on the patient ought to be those who will control her effectually but mildly, who will not irritate her, and will protect her from self-injury. These tasks are seldom well performed by her own servants and relatives.

"II. The next rule regards the diet of the patient. It ought never to be very low; the lowest ought to consist of nutritious and unheating fluids, such as equal parts of gruel and milk, or gruel and good veal broth, or milk alone: and of these a quart ought to be given in the twenty-four hours. If there is any heat or thirst the broth had better be omitted; but the cases in which this

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diet requires to be reduced are few; it even sometimes requires to be mended. If the patient is pale, and the temperature of the skin lower than natural, it is useful to add to the above diet two ounces of wine daily, mixed with gruel."

"Thus I would manage the diet in mania which occurs soon after delivery; but when melancholia attacks a woman long after delivery, who has been drained and enfeebled by nursing, a nutritious, and even cordial diet is necessary in all cases. She should take meat every day, with about four ounces of wine. Cupping, low diet, and purging, would confirm her disease, and perhaps convert it into idiotism. Lastly, if mania attack a women after sudden weaning, so that there is reason to believe that the disorder of the mind has been caused by the sudden suppression of milk, (a case very different to that which I have last described, and one which I have not witnessed,) there would be reason to suspect an inflammatory affection of the brain; but this must be determined, and the treatment regulated, not by the disorder of the mind, but by the bodily symptoms which accompany it."

III. The third rule relates to the medicinal agents required in the treatment of this disease. Of blood-letting it would be inferred from what has already been stated, that our author thinks unfavorably. It is necessary only where pain of the head and fever attend. Gastric and intestinal impurities, as manifested by a foul tongue, an offensive breath, and a yellow eye, are to be removed by emetics and purgatives. But, he remarks:

"The most valuable medicines in the treatment of puerperal mania are narcotics. If given at proper times and in proper doses, they often procure nights of better sleep, and days of greater tranquillity. This calmness is most likely to be followed by some clearing up of the disorder of the mind. These remedies produce these salutary effects much oftener in the mania of lying-in-women than in mania occurring under other circumstances; for it is more uniformly a disease of nervous excitement and debility. If the head is hot, the cheek flushed, and the patient thirsty, they ought to be postponed; but if these symptoms have been removed, or are not present, sedatives ought to be given, and the most efficient, first."

In such cases, morphine, or the sedative solution of opium should be used in preference to the usual forms of that drug.

"IV. The last rule I have to mention relates to seclusion and control. There can be no doubt that it is generally necessary and useful to separate the patient from all those persons who are sources of excitement of any kind. This, however, can be effected only in one of two ways—either in a separate house, or part of a house where the patient has no other associates but her nurses, or in a receptacle for the deranged, where she has no other associates than her nurses, and persons similarly afflicted with herself. This is the only society she has, excepting the short and occasional visits of the physician. Thus the power of controlling her, even by force, is placed in the hands, not of enlight-

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ened and benevolent persons, but of uneducated menials. I do not know how it can be otherwise, though I wish it could: but I think such a charge ought never to be placed in such hands without the most vigilant scrutiny of its exercise. There may be cases, or they may come a time at which some interruption to this solitary life may be advisable. When the disease has lasted long, when the patient expresses a strong wish to see some near friend, when she entertains illusions which the sight of some one may efface, the admission of such person is worth a trial."

Some interesting remarks on "Insanity as an object of Moral Science," are appended to this chapter. This subject was so ably treated in the last number of this Journal that we deem it unnecessary to quote any of the views of Dr. Gooch, who regards it as a disorder strictly physical.

In his third chapter he treats of the mode of distinguishing pregnancy from the diseases which resemble it. Of the blunders committed by practitioners ignorant of the manner of discrimination the following case is quoted as an example.

"We saw at Paris in the year 1666 a miserable example of this kind in a woman who was hanged and afterwards dissected publicly. She was found to be pregnant with a child of four months, notwithstanding the report of the persons who had visited her by the order of the judge before her execution, who assured the judge that she was not so. What deceived them was that this woman had menstruated in some degree. This affair made so much noise at Paris, that it came to the knowledge of the King and all his court, by whom those persons were greatly blamed, who by their ignorance had been the cause of the rash execution of this poor unfortunate, with whom had perished her infant, which was innocent of the crimes of its mother..... Besides the death of such innocent little creatures, they deprive them of eternal felicity by making them die in the belly of their mother without receiving the baptism which would have procured them so great a good.—*Mauriceau sur les Maladies des Grosses Femmes.*"

The author relies upon external examination, through the walls of the abdomen, and examination through the vagina, for the means of distinguishing. Particular rules are given on pp. 190, '91, '92, and '93, for conducting the examination.

Polypus of the Uterus, of which he treats in chapter IV. the author believes is a more frequent disease than is commonly supposed. It is to be removed of course, this being the only mode of cure. He remarks,

The instrument which I use for this purpose, and which in numerous cases has assisted me easily through the the operation, consists of two silver tubes, each eight inches long, perfectly straight, separate from one another, and open at

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both ends. A long ligature, consisting of strong whip-cord, is to be passed up the one tube and down the other, so that the middle of the ligature passes across from the upper end of one tube to the upper end of the other, and the two ends of the ligature hang out at the lower ends; the tubes are now to be placed side by side, and guided by the finger, are to be passed up the vagina, along the polypus, till their upper ends reach that part of the stalk round which the ligature is to be applied; and now the tubes are to be separated, and while one is fixed, the other is to be passed quite round the polypus till it arrives again at its fellow tube, and touches it. It is obvious that a loop of the ligature will thus encircle the stalk. The two tubes are now to be joined so as to make them form one instrument; for this purpose two rings, joined by their edges, and just large enough to slip over the two tubes, are to be passed up till they reach the upper ends of the tubes which they bind together immoveably. Two similar rings, connected with the upper by a long rod, are slipped over the lower ends of the tubes so as to bind them in like manner; thus these tubes, which at the beginning of the operation were separate, are now fixed together as one instrument. By drawing the ends of the ligatures out at the lower external ends of the tubes, and then twisting and tying them on a part of the instrument which projects from the lower rings, the loop round the stalk is thereby tightened, and, like a silk thread round a wart, causes it to die and fall off."

In the 5th chapter he treats of the "irritable uterus," by which he means "a painful and tender state of this organ, neither attended by, nor tending to produce, change in structure." As this is an obscure disease, and liable to be confounded with others of a different character, we give our author's description of it.

"A patient who is suffering from the irritable uterus complains of pain in the lowest part of the abdomen, along the brim of the pelvis, and often also in the loins. The pain is worse when she is up and taking exercise, and less when she is at rest in the horizontal posture; in this respect it resembles that of prolapsus uteri, but there is this difference, that in the latter, if the patient lies down, she soon becomes quite easy; but in the complaint of which I am speaking, the recumbent posture, although it diminishes, does not remove the pain. It is always present in some degree, and severe paroxysms often occur, although the patient has been recumbent for a long time. If the uterus is examined, it is found to be exquisitely tender, the finger can be introduced into the vagina, and pressed against its sides, without causing uneasiness, but as soon as it reaches and is pressed against the uterus, it gives exquisite pain. This tenderness, however, varies at different times, according to the degree of pain which has been laterally experienced. The neck and body of the uterus feel slightly swollen, but this condition also exists in different degrees, sometimes sufficiently manifest, sometimes scarcely or not at all perceptible. Excepting, however this tenderness, and occasionally this swelling, or rather tension, the uterus feels perfectly natural in structure; there is no evidence of schirrus

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in the neck, the orifice is not misshapen, its edges are not indurated. The patient, finding her pain greatly increased by rising and walking, soon learns to relieve herself by lying on the sofa, and at length spend nearly her whole time there. Notwithstanding this precaution, there is always a considerable degree of uneasiness, but this frequently increases to severe pain. These paroxysms generally come on either a few days before menstruation, or (as is the case in many instances) a few days afterwards. If the paroxysm is properly treated, it subsides in a few days to the ordinary and more moderate uneasiness. Whilst this uneasiness is felt in the substance of the uterus, the general circulation is but little disturbed. The pulse is soft, and not much quicker than is natural; but it is easily quickened by the slightest emotion. In a few instances, however there has been a greater and more permament excitement of the general circulation; the degree in which the health has been reduced has been different in different cases. A patient who was originally delicate, who has suffered long, and has used much depleting treatment, has been (as might reasonably be expected) the most reduced; she has grown thin, pale, weak and nervous; menstruation often continues regular, but sometimes diminishes, or ceases altogether; the functions of the stomach and bowels are not more interrupted than might be expected from the loss of air and exercise; the appetite is not good, and the bowels require aperients; yet nothing more surely occasions a paroxysm of pain than an active purgative. Such are the leading symptoms of this distressing complaint. To embody them in one view, let the reader fancy to himself a young or middle-aged woman, somewhat reduced in flesh and health, almost living on her sofa for months, or even years, from a constant pain in the uterus, which renders her unable to sit up and take exercise; the uterus, on examination, unchanged in structure, but exquisitely tender; even in the recumbent posture always in pain, but subject to great aggravations more or less frequently."

The causes productive of the disease are numerous, as considerable bodily exertion at times when the uterus is in a susceptible state.

"In one patient it came on after an enormous walk during a menstrual period; in another, it was occasioned by the patient's going a-shooting with her husband not many days after an abortion; in a third, it came on after standing for several hours many successive nights at concerts and parties; in a fourth, it originated in a journey in a rough carriage over the paved roads of France; in a fifth, it was attributed either to cold or an astringent lotion, by which a profuse lochia was suddenly stopt, followed by intense pain in the uterus: in a sixth it occurred soon after, and apparently in consequence of, matrimony. Although however, the disease followed, and was apparently excited by these several causes of irritation, yet the patients had previously manifested signs of predisposition to it; they were all sensitive in body and mind, many of them had been previously subject to the ordinary form of painful menstruation. The disease seemed to consist in a state of the uterus similar to that of painful menstruation, only permanent instead of occasional."

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The author next inquires, what is the nature of this disease? To which he replies,

"It is is not acute inflammation, for that would run a far shorter course, and end in certain known consequences. It is not chronic inflammation, for that is a disorganizing process, and slowly but surely alters the structure of the organ in which it goes on. Both in chronic inflammation, and in the disease which I am describing, there is a morbid state of the nerves indicated by pain, and sometimes at least a morbid state of the blood-vessels indicated by their fulness; but the substances effused by chronic inflammation show, that in this there is something additional in the actions, and consequently in the state of the vessels. The disease which I am describing resembles a state which other organs are subject to, and which in them is denominated irritation."

This disease, according to the experience of the author, never terminates in a derangement of structure, although apprehensions are entertained of cancer.

The treatment consists in, 1st. subduing pain; 2nd. restoring the general health. "The remedies for subduing pain, are the horizontal posture, narcotics, warm hip-baths, occasional local bleeding, to which may sometimes be added mercury and counter irritants." He depends upon chalybeate waters for the restoration of the general health.

Chapter VI. treats of a peculiar form of hæmorrhage from the uterus. This takes place when, notwithstanding the contraction of the uterus after delivery, the force of the circulation is so extraordinarily great as to overcome the closure of the orifices. Hence the indication is to give tranquillity to the circulation; and if the patient be subject to the disease, "to cause her to fall into labor with a cool skin and a quiet pulse." The treatment consists in abstinence from stimulating articles of diet, and the use of purgatives.

In the concluding chapter he treats of "some symptoms in children erroneously attributed to congestion of the brain." He thus describes the state:

"It is chiefly indicated by heaviness of head and drowsiness; the age of the little patients whom I have seen in this state has been from a few months to two or three years: they have been rather small of their age, and of delicate health, or they have been exposed to debilitating causes. The physician finds the child lying on its nurse's lap, unable or unwilling to raise its head, half asleep, one moment opening its eyes and the next closing them again with a remarkable expression of languor. The tongue is slightly white, the skin is not

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hot, at times the nurse remarks that it is colder than natural; in some cases there is at times a slight and transient flash; the bowels I have always seen already disturbed by purgatives, so that I can scarcely say what they are when left to themselves: thus the state which I am describing is marked by heaviness of the head and drowsiness, without any signs of pain, great languor, and a total absence of all active febrile symptoms. The cases which I have seen have been invariably attributed to congestion of the brain, and the remedies employed have been leeches and cold lotions to the head, and purgatives, especially calomel. Under this treatment they have gradually become worse, the languor has increased, the deficiency of heat has become greater and more permanent, the pulse quicker and weaker, and at the end of a few days, or a week, or sometimes longer, the little patients have died with symptoms apparently of exhaustion. In two cases, however, I have seen, during the last few hours, symptoms of oppressed brain, as coma, stertorous breathing, and dilated and motionless pupil."

The following case is related as a specimen.

"A little girl, about two years old, small of her age and very delicate, was taken ill with the symptoms which I have above described. She lay dozing, languid, with a cool skin, and a pulse rather weak, but not much quicker than natural. She had no disposition to take nourishment. Her sister having died only a week before of an illness which began exactly in the same way, and which was treated by leeches and purgatives; and some doubts having been entertained by the medical attendant of the propriety of the treatment, leeches were withheld, but the child not being better at the end of two days, the parents naturally anxious about their only surviving child, consulted another practitioner. The case was immediately decided to be one of cerebral congestion, and three leeches were ordered to be applied to the head. As the nurse was going to apply them, and during the absence of the medical attendants, a friend called in who had been educated for physic, but had never practised it, and who had great influence with the family: he saw the child, said that the doctors were not sufficiently active, and advised the number of leeches to be doubled. Six therefore, were applied; they bled copiously; but when the medical attendants assembled in the evening they found the aspect of the case totally altered, and that for the worse; the child was deadly pale, it had scarcely any pulse, its skin was cold, the pupils were dilated and motionless when light was allowed to fall on them, and when a watch was held to its eyes it seemed not to see; there was no squinting. Did this state of vision depend on the pressure of a fluid effused into the brain since the bleeding, and during this exhausted and feeble state of circulation, or did it depend on the circulation of the brain being too languid to support the sensibility of the retina? It is well known that large losses of blood enfeeble vision. I saw a striking instance of this in a lady who flooded to death. When I entered the chamber she had no pulse, and she was tossing about in that restless state which is so fatal a sign in these terrific cases. She could still speak, asked whether I was come, (she knew I had been sent for,) and said, 'Am I in any danger?—How dark the room is!—I can't see.' The shutters were open, the blind up, and the light

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from the window facing the bed fell strong on the face. I had the curiosity to lift the lid and observe the state of the eye; the pupil was completely dilated, and perfectly motionless, though the light fell strong on it. Who can doubt that here the insensibility of the retina depended on the deficiency of its circulation? But to return to the little patient. The next day she had vomited her food several times; it was therefore directed that she should take no other nutriment than a dessert spoonful of ass's milk ever hour, and this was strictly obeyed, and continued for several days. The child wasted, her features grew sharp, every now and then she looked fretful, and uttered a faint squeaking ing cry; the eye balls became sunk in the socket, like those of a corpse that had been dead a month; the skin continued cool, and often cold, and the pulse weak, tremulous, and sometimes scarcely to be felt. Under this regimen, and in this way, she continued to go on for several days. At times she revived a little, so as to induce those who prescribed this treatment to believe confidently that she would recover, and she clearly regained her sight, for if a watch was held up to her, she would follow it with her eyes. She lived longer than I expected; a full week, and then died with the symptoms of exhaustion, not with those of oppressed brain. The head was opened by a surgeon accustomed to anatomical examinations, and nothing was found but a little more serum than is usual in the venticles.

If the reader has perused the foregoing case attentively, and has reflected on it, he will ofcourse draw his own inferences. I can draw no others than these, that the heaviness of head and drowsiness, which were attributed to congestion in the brain, really depended on a deficiency of nervous energy; that the bleeding and scanty diet aggravated this state, and insured the death of the child; also, that the state of the eye which so speedily followed the loss of blood, and which resembled that occasioned by effusion, did in reality depend on a deficiency in the circulation of the brain, a fact of considerable curiosity and importance."

The author's plan of treatment may be gathered from the following extract, with which we shall close our notice of this valuable work.

"So inveterate is the disposition to attribute drowsiness in children to congestion in the brain, and to treat it so, that I have seen an infant, four months old, half dead from the diarrhœa produced by artificial food, and capable of being saved only by cordials, aromatics, and a breast of milk; but because it lay dozing on its nurse's lap two leeches had been put on the temples, and this by a practitioner of more than average sense and knowledge. I took off the leeches, stopped the bleeding of the bites, and attempted nothing but to restrain the diarrhœa, and get in plenty of nature's nutriment, and as I succeeded in this, the drowsiness went off, and the child revived. If it could have reasoned and spoken, it would have told this practitioner how wrong he was; any one, who from long defect in the organs of nutrition, is reduced, so that he has neither flesh on his body, nor blood in his veins, well knows what it is to lay down his head and dose away half the day without any congestion or inflammation of

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his brain. This error, although I have specified it only in a particular complaint of children, may be observed in our notion and treatment of other diseases, and at other periods of life. If a woman has a profuse hemorrhage, after delivery, she will probably have a distressing head-ache, with throbbing in the head, noises in the ears, a colourless complexion, and a quick, weak, often-thrilling pulse, all which symptoms are greatly increased by any exertion. I have seen this state treated in various ways, by small opiates, gentle aperients, and unstimulating nourishment, with no relief. I have seen blood taken away from the head, and it has afforded relief for a few hours, but then the head-ache, throbbing and noises have returned worse than ever; the truth is, that is the acute state of what in a minor degree and in a more chronic form occurs in chlorosis, by which I mean pale-faced amenorrhœa, whether at puberty or in after-life. It may be called *acute chlorosis*, and like that disease is best cured by steel, given at first in small doses, gradually increased, merely obviating constipation by aloetic aperients."

ART. VIII.—*A Biographical Sketch of Nathan Smith, M. D., late Professor of the Theory and Practice of Physic, Surgery, and Obstetrics, in Yale College, &c. &c.*

The following reminiscences have been placed in our hands by an early and intimate friend of Dr. Smith, and as they relate to one of the most distinguished of New England Surgeons, we have thought that they might not be unacceptable to our readers.

Dr. Smith was a self-taught man. He was one of those few men, who have risen to distinguished eminence by the mere force of native genius, accompanied by persevering enterprise and industry. He was, I think, a native of Vermont, and his early education was below mediocrity. He was induced by the following circumstance to turn his attention to the study of medicine, without any of that early education, deemed, particularly in New England, so important a preliminary. His employer met with an accident, which was attended with the loss of a limb. Dr. Goodhue, then re-

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puted the first surgeon in Vermont, and a most amiable and excellent man, living about 50 miles distant, was sent for to perform the operation. As Smith was a stout man, and remarkable for the strength and steadines of his nerves, the patient insisted on having him called in to hold him, while the operation was going on; it was done—and Smith, with eager curiosity, watched every movement of the Surgeon. The affair being over, Dr. G. after some general directions, remarked that he should stay that night at a certain house, on his way home, about 5 miles from the scene of operation, and requested, that if any unfavorable appearances presented, they should let him know early the next morning, before he started and he would return. He set out however, at 8, and proceeded about two miles, when he was overtaken by Smith, whose business was to inquire on what terms he could be admitted his pupil. He was informed by the Surgeon that it would be necessary for him to improve his general education before embarking in a study of so much difficulty, and with this understanding they parted.

In six months he was at the shop of the Doctor, having in the mean time, lived with a Clergyman, and acquired a slight knowledge of Latin. Having remained with him a few years, and receiving the recommendation of his preceptor, he established himself at Cornish, in New Hampshire, a rich country town about twenty miles below Dartmouth College.

The following anecdote, connected with the operation just mentioned, shows the turn of his mind for the art in which he afterwards became so distinguished. When the limb had been amputated, and Dr. Goodhue was gone, Smith expressed some doubt as to the skill of the operator. He is no doubt, said he, a great Surgeon, but "I could now perform the same operation in half the time, and with less pain to the patient. In several parts of the operation I saw where he missed it; and before he had got through, I had about made up my mind to be a Doctor."

In 1796 he had been several years in practice at Cornish, had attended several courses of Lectures at Cambridge, (then

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the only Medical School in New England,) and had received his Medical Diploma. He had married an elegant woman, the daughter of the late Gen. Chase, one of the wealthiest and most respectable citizens of Cornish, and uncle of the present Bishop Chase of Ohio. She died soon after; and, at a suitable period, he married a younger sister of the same family. His professional career, though commenced on a small scale, was soon attended with brilliant success. Having availed himself of all Dr. Goodhue could teach him, and as he conceived, of all he could learn at Cambridge, he acquired confidence, and began to rely on his own resources. Animated by his already growing fame, arising from the *uniform success*, which attended every operation, some of which were of the boldest and most difficult character, he conceived the project of becoming a *Lecturer on Surgery*; and, in short, of establishing a *Medical School at Dartmouth College*. He opened the project to Dr. Wheelock, then President of of that respectable Institution. It was what had never entered the President's mind, and he considered the proposition about as chimerical, as did Dr. Goodhue, his project of becoming a Doctor. He however treated him kindly, acknowledged that a good Medical School there was a desideratum, but doubted much of its practicability at that time; spoke of the one at Cambridge, as but poorly supported; and added, "you will want able coadjutors—and where can they be had?" Smith replied with characteristic firmness, "what pupils I shall have at first, I can teach myself; if the number increases, as I think it will, I can find assistants when I shall need them." "But have you visited Europe?" asked the President; "have you witnessed the practice in Greenwich Hospital? Have you a Diploma from Edinburgh?" These, to be sure, were rather astounding questions; and to an ordinary mind, would perhaps, at that time, have been decisive against the project. Not so with Smith—after a moment's pause, and a little deep reflection, he replied—"True sir, I did not think of that; but all this can yet be done, and *it shall*; for *the School must be attempted*." The President, seeing his re-

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solution, began to be favorably impressed with his views, and assured him, that whenever he thought circumstances would justify the commencement of a school, he might rely on his patronage and co-operation. They parted, and in three weeks Smith had embarked on his voyage to Europe. He was absent about a year, visited the principal Medical Establishments in Great Britain, attended several courses of Lectures, returned to Cornish, spent one night with his family, and the next day presented himself to Dr. Wheelock, to inform him, that *he was now ready to open his School.* In short, *it was commenced*; and thus was laid the foundation of an establishment, which, notwithstanding some reverses in the Academical Department, has continued to flourish, and is still ranked among the best Medical Schools in New England.

In 1808-9 Dr. Smith was invited to New Haven; and both professionally and as a man he stood equally high there as at Hanover. He established a Medical School while connected with Yale, at Bowdoin College, in the State of Maine and delivered several courses of Lectures there. He also established, or was mainly instrumental in establishing, another at Burlington University, in Vermont, where one of his promising sons was made a professor.

During his residence at Dartmouth College, to which place he removed from Cornish, after opening his Medical School there, his practice was very extensive. In Boston he was held in high repute, where he commonly spent two or three months every year, in order to give *feet to the lame* and *eyes to the blind.* As an Oculist he stood unrivalled in New England. I have seen him operate on the eye, by couching; and it seemed as easy and familiar to him as the pairing of a finger nail. His success was wonderful. He frequently operated with success, when the Cambridge Professors chose not to attempt it, or said it would be useless or fatal.

As to his intellectual powers, they were uncommonly strong, quick, and discriminating. He saw through whatever was within his grasp, the moment it was presented distinctly to his view. So rapidly would he often arrive at conclusions,

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that his knowledge, to a superficial observer, would seem to be intuitive. Some of the preceding sketches show the promptitude and decision with which he acted. Having adopted a plan, he never deserted it. No trait of his character has been more strikingly developed, than that of perseverance and untiring industry. Without them both, no man could ever have accomplished what he has done. In the social circle he was always cheerful, animated and interesting. I may add, he was always instructive. He was fond of amusement, but would never permit it to interfere with business. He had a great facility in passing from one to the other, without suffering them to interfere.

His good feelings, his benevolence, and his generosity were unlimited. Always open, candid, honest and sincere; above artifice and disguise, he always carried *his heart in his hand.* I never knew a man so perfectly artless and unaffected—so apparently incapable of deception or intrigue; and who more thoroughly despised and detested every thing of this sort in others. Plain and direct, he always spoke from the feelings of his heart, keeping nothing back; and, when he had done, you knew exactly what he thought and what he wished. He especially abhorred every kind of quackery,—whether it appeared in Physic, Law or Divinity;—and no man had an eye that could more readily detect it in either. To money he was ever indifferent. He attached no value to it, except when the necessities of his family demanded it, or when a creditor called, or when he wished to relieve the indigent and wretched. Hence, in the early part of his life, with all his income, he was always out of funds. Nothing but a very clamorous creditor could induce him to collect a debt. I have understood, that he did better, in this respect, after he went to New Haven. This trait of his character was *against him*; it was a great defect.

In personal appearance, Dr. Smith was imposing. He was remarkably well proportioned, about 5 feet 10 inches high, with a round full chest, and a fine head. His face was rather thin, but perfectly Roman; his nose eminently so. Every

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feature was indicative of intellect and quickness of thought. His eyes were black, keen, sparkling and penetrating. His step and all his movements quick. He acquired a habit of stooping a little in his walk—whether from bending so often over patients and subjects, or from an eagerness to get on faster than his feet would carry him, I know not.

Of the productions of Dr. Smith's pen, I have seen only his "Essay on Typhous Fever," which appeared in 1824; nor am I indeed aware that he published any thing else. It is not presumable that one so much engrossed by the practical duties of his profession, would find much leisure to enrich its literature. Of his work on typhus, a favorable opinion was pronounced by the professional critics of the day, and it may, probably, still be considered one of the most lucid and satisfactory accounts of that disease which have been published in this country. The author advocates its contagiousness; in proof of which he adduces some striking instances; but it is not too much to say that all his facts and arguments are far from settling the question. In his treatment of the disease he inclines to a palliative course, his experience having taught him that it cannot be arrested by any plan, and that the duty of the physician is to ward off unfavorable symptoms, and guide the case to a successful issue. Of all the remedies of which he speaks, he is most partial to cold water externally applied.

On a review of these brief recollections it is impossible not to be struck with the vigor and inventiveness of Dr. Smith's mind, and the enterprise which, under such circumstances, could accomplish so much. It is sufficient eulogy, that without the aid of an early education, he became one of the most distinguished surgeons in New England, and the founder and ornament of more than one Medical school.

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MISCELLANEOUS INTELLIGENCE.

Hepatic obstructions removed by electricity. By Saml. Crockett Sloan, M. D.—When there is congestion, or chronic inflammation in the liver, we charge the patient with the electric fluid, and draw the sparks from the painful part. There will be a slight reaction and general warmth over the whole body, continuing for several hours. The same thing should be repeated daily, for some weeks, or as long as there is a recurrence of the symptoms, just as we would give calomel and aloes, if we were curing it by the use of medicine. By means of the electric fluid drawn through the hepatic region, we shall procure consistent bilious passages, in the course of one or two days, which may be kept up for some considerable time, without the assistance of any other agent.

Whether there is any thing imparted to the blood or not, by passing the electric fluid through the liver, I do not pretend to say, but it increases the action of that organ, and enables it to relieve itself of the superabundant quantity of blood, which has been suffered to remain in it. There is no speculation in all this. Chronic diseases of the liver may be cured by the above plan of treatment without the internal use of a particle of medicine.

As regards the use of electricity in low bilious fevers, permit me to make one remark, before I close this notice. We have had for the last two or three years, a great many cases of bilious congestive fever; or a torpid state of the system with little or no reaction, with great torpidity of the bowels, requiring enormous doses of calomel and other cathartic medicines to act. In such cases I would recommend the use of electricity, as a means of arousing the latent energies of the system. In this way the liver is excited to the healthy performance of its function, and small doses of medicine produce their desired effect.

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[The following singular case of *Uroplania* occurred in the practice of a respectable physician of New England. It was transmitted to the Editor of this Journal for publication, by a distinguished Professor in an eastern College, and the facts stated may be fully relied on.]

The facts relating to the case, briefly stated, are these. The patient between two and three years ago was troubled with a bad cough and severe pain in the side. The physician who attended upon her, carried the depleting system to a great length, and then gave a powerful emetic, from which time she was unable to pass her water, and to the present day the obstruction is so great, and the suppression so complete, that she is under the disagreeable necessity of having it drawn off by the catheter daily. About a year since, Dr. A., (under whose care she now is,) took charge of her, and she continued in the same condition as before, until about seven months ago, when the urine began to run off from her right ear and has continued so to do with the exception of a very few days, until the present time. The quantity passed, varies from eight to upwards of twenty four ounces. It is usually of the natural color of urine, though sometimes it is very highly colored, at others nearly limpid, and occasionally of a very deep black. This last makes an indelible stain on white cloth, and when written with has the appearance of ink. It unquestionably owes its color to melanic acid, like that analized by Dr. Marcet, and noticed in the Jan. No. of the N. E. Medical Journal. A month or two since, (whilst still coming off from the ear,) she began to throw it up from the *stomach*. The quantity thus passing off, is sometimes *two quarts*, and as yet never less than one. It does not affect her appetite, neither is the food mixed with it when thrown up soon after eating. It presents the same variety of colors as that from the ear; the black however does not leave so permanent a stain on cloth. But as if nature was not contented or sufficiently amused with these singular sports of her invention, she has been once more busily at work to form another curious outlet. On the 21st inst. the patient informed me, that she was trou-

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bled with a pain and tension in her *right breast*, and that water oozed out which appeared to be *urine*. On the 28th inst. I had an opportunity of testing some of it, and proved to my satisfaction that it *was urine*. On the 30th ult. about seven ounces were drawn off by means of a nipple shell, which had the natural appearance of urine.

However singular, or almost incredible this case may appear, (as indeed it naturally must,) you may rely with the most implicit confidence upon its authenticity. Although there have been instances known of urine passing off by the stomach, one of which took place in this vicinity a number of years ago, and another now exists in Boston, and although Dr. Senter reported a very singular case of this complaint, in one number of the Philadelphia Philosophical Transactions, there has probably never before been known an instance so extraordinary as this, of urine passing off from the stomach, breast, and ear, day after day, and of so great a variety of colors.—From white to light straw color, from that to deep orange approaching to red, and from pale bluish black to that of the darkest die. The patient is also troubled with a prolapsus et procidentia uteri; her catamenial discharge is suppressed and she has a vicarious one from the lungs and stomach.

A case of Carditis, terminating fatally; with the Autopsy.—Miss M. who for twelve or fourteen months had been in delicate health, suffered much from repeated fits of the headache, was attacked with severe intermittent fever. Nothing had been done with a view to the restoration of her health, until aid was required on account of the acute fever under which she was found to labour. For this the usual remedies, consisting exclusively of evacuants, were prescribed, and she became convalescent in ten days; but before she recovered sufficient strength to admit of exercise on the streets, she became the subject of a new and very excruciating symptom, a deep seated pain in the muscles of the leg. When called to prescribe for this symptom it was found to be purely nervous,

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unattended by either tumefaction or inflammation. The very liberal use of evacuant medicines with great abstinence, subdued the pain in the leg, after which a similar affection came in the muscles above the knee. In twelve or fifteen days after the more acute symptoms in the lower limb had subsided, she suddenly lost the use of the left hand and fore-arm. In two weeks after the affection of the hand first appeared there was manifestly a partial affection of that side of the face and body as well as the extremities, and this was succeeded by an occasional spasmodic movement of the muscles of the face, body and limbs very nearly allied to hysteric convulsions.

From the period of the first visit, when the case was presumed to be intermittent only, the pulse was observed to be unusually frequent and small, sometimes very compressible but always tense during some period of the twenty-four hours. The morbid sensibility of the patient was so great that the pulse was observed to vary thirty or forty strokes in the minute, as a consequence of intellectual excitement; a fact that made it necesary to withhold all communications calculated to make much impression upon the mind. The affection of the lower limb, the convulsive movement of the muscles, the extraordinary frequency of the pulse, with the excitable state of the mind were speedily found to be associated with difficult respiration and cough, but no pain except low down on the left side.

In fifteen or twenty days more, and consequently about two months from her first confinement, the state of the respiratory and circulatory organs called for exclusive attention, and seemed to constitute the source of all morbid action.

The pulse maintained invariable and great frequency with more or less febrile excitement during some part of every twenty four hours. The difficulty of breathing together with the morbidly excitable state of the patient were observed to be progresively increasing, while coughing with more or less difficult expectoration was a symptom peculiarly distressing and obstinate. During the last ten days of the patient's existence there was, for a few days, on one occasion, a transfer

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of morbid action to the abdomen accompanied by swelling and increased sensibility, upon pressure; as also to the brain at another time, which manifested itself in distressing delirium.

In the latter stage of the malady there was slight œdema of the lower limbs.

Finally the patient was exhausted, and sunk under a copious secretion of mucus into the lungs, which she was no longer able to throw off.

Eighteen hours after her death, the chest and abdomen were examined. The pleura and lungs were extensively inflamed: the heart was enlarged to double its proper dimensions, its color pale, its surface covered over nearly with fat; and its muscularity so thoroughly broken down by inflammation, that the finger and thumb were passed through its body with very gentle pressure.

The abdomen, upon the contents of which morbid action had been located for a few days, gave evidence of it in an increased vascularity of the peritonial covering, with a secretion of three quarts, or a gallon of colored serum into the common cavity. For want of time the brain was not examined.

A Case of Dropsy.—The following case occurred in the practice of Dr. Hoskins, of Tennessee.

S. W. æt. 27, of robust form, was thrown, in wrestling, and much injured in his abdomen. Constipation ensued, and, at the expiration of a month, he presented symptoms of general dropsy, attended with a hard dry cough, difficult respiration, quick, tense pulse, and great emaciation.

Treatment.—The patient was operated upon by tapping, by which he discharged 2 gallons of serum, followed by a quart of pus. The pus continued to pass off for some months, until the orifice healed: He took purgatives, composed of jalap and cream of tartar, every two or three days; calomel, in small doses, daily, which produced ptyalism; and sulphuric acid as a tonic. He was allowed a nourishing diet, and in two months from the time of receiving the injury, he was discharged relieved.

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ANALECTA.

Effects of Minute Doses of Mercury in Restoring the Vital Functions.—I had occasion to observe, in speaking of Mr. Abernethy's plan of exhibiting mercury in diseases of continuance, that when it fails there is another which is often successful. This consists simply in greatly lessening the dose, and in the same proportion increasing its frequency.

The benefit derived from this change depends upon the most fundamental laws of our frame. All agents, capable of affecting the living animal body, act both as stimulant and sedative, according to the quantities employed; and we call them by one or other of these names, according as they are best fitted to produce the one or other effect.

Spirit of wine we call a stimulant, because in all moderate quantities it produces the stimulant effect; but there is a quantity of it, as appeared in the riots of Lord George Gordon, when many of the mob took draughts of spirit of wine, mistaking it for common gin, which produced instant death without any degree of previous excitement. Digitalis we call a sedative, because in ordinary doses it acts as such; but it appears, from very accurate experiments, that in extremely minute doses it acts as a stimulant.

Mercury is one of those agents in which the stimulant and sedative effects, are so nearly balanced, that neither predominates so much as to obtain for it either appellation; but it observes the same law as all other agents capable of affecting the living animal body. In small or moderate doses, the stimulant effect prevails; in excessive doses, the sedative; and the repetition of even moderate doses, unless at very distant intervals, seldom fails at length to produce more or less of the latter. Is there a dose then, so small as to produce little or no sedative effect, and yet capable of the stimulant effect on which we have reason to believe the beneficial tendency of this medicine always depends? Is there a dose in which, in most constitutions, the sedative effect either does not take place, or takes place so slowly that the cure may be far advanced before the patient begins to experience any degree of it?

The result of my experience is, that there is such a dose.

With respect to its amount, it varies from half a grain of blue pill, the largest dose I almost ever employ with a view to the alterative effect, to the eighth part of a grain, the smallest dose from which, in general, much good can arise, though there are cases, in particular constitutions, in which I believe much smaller doses than even this will be found beneficial, and the interval at which the dose has been given is from six to eight hours. By these doses, given at such intervals, we can in most constitutions, and for a considerable length of time, in some for an unlimited time, obtain the stimulant without the sedative effect of the medicine, which is the great object in the employment of mercury. We thus, as the particular constitution is capable of it, secure the whole of its beneficial, without any degree of its injurious effects.

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As soon as the latter is perceived, it must either be obviated, or the medicine laid aside; for nothing will compensate for the sedative effect of this medicine, whether produced by large or small doses. It is as certainly injurious as the disease, but, as in the case of the medicine, it is always in our power to remove the offending cause; in the hands of a prudent practitioner, we have the chance of benefit without the risk of injury, unless the certainly fatal nature of the disease makes it advisable to risk, to a certain extent, the sedative effect of the only means of cure.

With respect to the minute and frequently repeated doses, I would say without hesitation, and from ample experience, that in all cases, except where the great discharges, or other rapid effects this medicine is capable of producing, are required, they are not only the safest, but the most effectual, mode of exhibiting it. Their operation appears to be that of a gentle but constant stimulant, exciting to due action the various organs of assimilation, and particularly the liver. The following case is strikingly illustrative of their power in producing the peculiar effects of the medicine, and I could add many others of a similar nature:—

A lady came from a great distance to London, for the purpose, she said, of being salivated, which she had been told would cure her of a bilious complaint, under which she had labored for many years. For this purpose she had taken in vain, in the country, very large doses of mercury, much beyond the largest usually given in this climate. I saw no occasion for salivation, but directed her, with other means, half a grain of blue pill three times a day. Her case did not require frequent visits, and not being then so well acquainted with the effects of the plan, I thought, as the mouth had resisted such doses, that no precautions respecting it were necessary, when at one of my visits, after she had taken the medicine for about a fortnight, I found her in a state of severe salivation; the whole of the face was swelled, and she was for a considerable time confined to bed. At no great distance of time she left London well, and I learned from her sister, who two years afterwards was placed under my care, that she remained so.

It is not difficult to perceive the principle on which the minute doses are so powerful. From their little apparent tendency, they readily enter the system, and, from the little irritation and excitement, they occasion, they are not apt to be thrown off by it. Such cases as the preceding, and I could mention many, in which a certain affection of the mouth arose from even smaller quantities, which, had they been continued, would soon have produced the same effect as in the preceding case, prove that the peculiar effects of mercury may be obtained in any degree we please, by small doses. What, then, can be the motive for employing larger ones, unless, either from the nature of the symptoms, or the urgency of the case, the more active effects of the medicine, or the more rapid impregnation of the system, be required; or, as happens in certain diseases, the powers of the absorbing vessels are so impaired, that minute doses are no longer capable of exciting them, and therefore cannnot enter the system?

The cause of minute doses sometimes producing an effect on the gums, when larger doses fail, arises from the latter being so much more powerful in exci-

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ting the excretories, by which, in certain constitutions, they are often thrown off as fast as they are taken, and thus little impression is made, either on the mouth or disease. It is to the thorough manner in which the minute doses are received into, and retained in, the system, and the general, steady, and gentle impression they make, that they owe an efficacy which surprises those who have not been accustomed to see their effects.

Such doses, of course, have little effect in suddenly emulging the biliary ducts, and thus discharging collections of vitiated bile; and, until they succeed in restoring the due action of the liver, which in general requires some time, the collections are in many cases more or less apt to form under their use, and occasionally to require the operation of a more active mercurial, the necessity for which is different in different cases, according to the tendency to such accumulations. Where there is no tendency of this kind, the active dose is unnecessary, and its frequent repetition is seldom proper. Calomel, we have seen, generally answers the purpose of the larger dose better than the blue pill, although, in the more obstinate cases, I have sometimes found a combination of the plan I am now describing, and that of Mr. Abernethy, the most successful. *Dr. A. P. W. Philips.—London Medical Gazette.*

Case of Unusual Dislocation of the Hip Joint. By Robert Keate, Surgeon.—I was called into the country, on the 13th February, to see a gentleman who had met with a severe accident, by his horse having fallen backwards with him and upon him, into a deep and narrow lane, where he had remained, as he supposes, for near a quarter of an hour before he was discovered, when he was nearly exhausted by pain and by fruitless exertions in calling aloud for aid. The horse was lying on its back upon him, with his heels struggling in the air; but the gentleman, who is strong and muscular, appears to have retained a firm hold of the bridle, and thus to have kept down the horse's head, and restrained, in some degree, the violent efforts of the animal.

He had been brought home, and was on his bed when I arrived. On examining the limb, I found it unusually elongated—at least from three to three inches and a half. The thigh was much flexed upon the pelvis—the leg as much bent on the thigh. The whole limb was carried outward, or apart from the other, more than I had ever observed in any case of luxation. The knee and the foot were much everted—the trochanter extremely sunk, the soft parts being elevated in a circle around it. I found that the head of the femur was displaced, in a very unusual manner, to a situation inferior to the ischiatic notch, and I felt it lying close to, and on a level with, the tuberosity of the ischium, where it was capable of being freely moved under my fingers.

Without noticing the usual preparations for reducing a luxation, it will be sufficient to say, that in the first attempt the head of the bone was thrown into the foramen ovale. A second extension enabled me to place it *nearly* in its proper position in the acetabulum, but it could not be perfectly replaced; and on gently moving it, and placing my ear on the trochanter, I felt and heard a distinct grating, as if of ruptured cartilage. By drawing the upper part of the femur outwards, (by means of a round towel thrown over my neck,) and

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pressing the knee sharply inwards, the head of the bone was replaced, with a snap, in the acetabulum; but, even after this, I was able to elongate or pull down the limb, and it was evident to me that this was owing to a portion of the cartilaginous labrum having been broken off during the violence of the accident.

The gentleman was quite aware, and mentioned, after the first step, as I may call it, of the reduction into the foramen ovale, that the head of the bone was not properly replaced; and he stated that the luxation had taken place by the same route, first into the thyroid foramen, and afterwards while struggling in the ditch—from thence downwards to the situation in which I found it. The case has proved very favorable; but there was a severe injury at the same time to the knee, which threatens still to be troublesome.—*Medical Gazette.*

On the use of Tobacco in Gout.—Besides the power which this vegetable possesses in allaying the pain and abating the inflammation of gout, it assists the parts most materially in recovering their tone and strength.

The sensible effects of tobacco upon the skin and cuticle are readily perceived, by immersing, for a short time, the fingers in an infusion, or in watery solution of the extract.

The infusion forms a valuable application in all cases of erysipelatous inflammation, and the only precaution to be attended to, is not to apply it to any part contiguous to the stomach, unless the production of nausea be at the same time desirable.

I was led to appreciate the valuable sedative and astringent power of tobacco in the first instance by the benefit I derived from it in cases of the last mentioned class, having many years ago instituted an extensive trial of all the known narcotics, with the expectation of deriving additional aid in the treatment of purulent ophthalmia.

The good and the powerful effects which I obtained from the tobacco, fully compensated for the inefficiency of all the other local applications I then tried; its effects were notorious to all who saw it employed, and I now, as I ought to have done twenty years sooner, recommend its use to general notice, in cases of acute migratory inflammation, and especially when it attacks the joints, testicle, or sclerotic coat of the eye.

The infusion as directed by the London Pharmacopœia is sufficiently strong, and in many cases it is well to rub the part with eau de Cologne after the use of tobacco.—*Med.-Chir. Trans. Vol. XVI.*

Bloody Perspiration.—A curious case of this kind is related in the French "Transactions Medicales" for November last.

Case. A young woman, aged twenty-one years, irregular in menstruation, and of indolent habits and obstinate temper, had been much irritated by some reflections made by her parents, on account of her abjuring the Protestant religion. She left her paternal roof, and after wandering about for some time, took up her residence in an hospital. She then was suffering violent attacks of hysteria, attended with general convulsions, and exquisite sensibility in the pubic and hypogastric regions. After paroxysms of hysteria, which sometimes

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lasted 24 or 36 hours, this female fell into a kind of extacy, in which she lay with her eyes fixed, sensibility and motion suspended. Sometimes she muttered a prayer; but the most remarkable phenomenon was an exudation of blood from the cheeks and the epigastrium, in the form of perspiration. The blood exuded in drops and tinged the linen. The cutaneous surface appeared injected in those parts whence the bloops escaped, being red, and showing a network of arborescent vessels. This bloody perspiration took place every time that the hysteric paroxysm continued for a considerable time. This state continued for three months; and ultimately gave way, it is said, to local bleeding about the head and sexual organs, together with strong revulsive measures.—*Bost. Med. and Surg. Jour.*

Smallpox.—During the last eighteen months, M. Louis has had the opportunity of examining the bodies of fifteen patients who died of smallpox. In eleven of these he found in the bronchia either a false membrane, or a collection of pus or blood. In one-third of the cases there was a morbid development of the glands of Brunner forming exanthematous pustules. In no case were the elliptical plates altered.—*Gazette Medicale.*

Cysts in the Heart.—M. Flandin exhibited to the Anatomical Society of Paris, at their meeting on the 6th of July last, a heart, in the left ventricle of which were cysts containing clots of blood, and the centre of these clots was filled with pus.—*Revue Med. August*, 1831.

Pustules in the Intestines caused by the internal Administration of Tartar Emetic.—M. Guerard says that he has met with, in two persons treated by large doses of tartar emetic, pustules similar to those produced on the skin by the application to it of that article. These pustules occupied a considerable portion of the intestinal canal; there existed besides no sign of dothinenteritis. The stomach was healthy.—*Ibid.*

Prevention of Abortion.—An intelligent physician of Alabama, has been successful in carrying a patient through the usual term of gestation, in whom a tendency to abortion existed in an excessive degree. In the course of nine years her hopes had been disappointed ten or eleven times, and always at about the fifth month. Numerous medical gentlemen of the highest eminence had been consulted, and a great number of methods been resorted to, to prevent the recurrence of the accident; but all to no purpose. Yet her constitution was strong, and the confinement consequent on miscarriage, always short. The course which finally succeeded was, the internal use of tincture of cantharides so as to keep up a constant strangury. The lumbar region over the spine was also kept excoriated by the terebinthinate decoction of cantharides. When the strangury was very painful, these remedies were intermitted, and the usual means of relief resorted to, and then the medicine was resumed. This is a case of great interest, and, to the practising physician, of the utmost importance.—*Bost. Med. and Surg. Jour.*

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Fatal Effects of Castor Oil on a Horse.—A case has recently occurred in England, in which the death of a horse was evidently produced by the effects of a quart of castor oil given as a purgative. It operated powerfully: but the animal soon died. On examination, a large intro-susception of the jejunum was discovered, and the mucous membrane of the stomach and intestines exhibited marks of severe inflammation.

Employment of Ice in Infantile Ophthalmia.—M. Rust states, in his Magazine, vol. xxx., that the application of ice has been very serviceable in the beginning of this disease, particularly when the inflammation is principally seated in the eyelids, and they are much tumefied.

Hereditary Syphilis.—Professor Haase has recorded some interesting cases in which syphilis appeared in very young infants, although their parents had been for many years perfectly free from any venereal affection, and to all appearance in perfect health. Many similar facts have been related by other writers. M. Haase infers that a syphilitic diathesis may be transmitted from parents to their offspring, in the same manner as the disposition to scrofula, &c., and that no *material* transmission is essentially necessary. M. H. is also of opinion that new-born children may inherit syphilis from the father, although the mother has never been infected.—*Bull. des Sc. Med.*

Hufeland's Emetic for Infants.—R. Pulv. Ipecac. scruple j·
Oxym. Scillæ, ounce ss.
Syrupi. Framb. ounce ss.
Aquæ comm. ounce ss. M.

A spoonful is to be given in coffee, at short intervals, until vomiting is induced, and it may be repeated if the action is to be kept up. For children more than a year old, a quarter of a grain of tartar emetic may be added to the above mixture, unless diarrhœa be present.—*Gazette des Hopitaux.*

Delirium Tremens.—Of 43 patients labouring under this complaint, M. Pauli has lost but 1, and in 12 cases has been enabled to stifle it in its beginning. His grand remedy is fresh *ox gall*, in a dose of from 3 to 6 drachms (gros) in from 4 to 6 ounces of peppermint water, infusion of valerian or calamus aromaticus. Same time, the patient takes half a glass of brandy in the morning, and at night one or two grains of watery extract of opium.—*Rust's Magazine.*

Enormous Dilatation of the Biliary Ducts.—M. Berard has met with a case in which the biliary ducts were enlarged from twelve to fifteen times their natural size in the parenchyma of the liver. The patient had neither icterus nor obliteration of the ductus choledochus, but the biliary ducts contained many calculi.—*Rev. Med.*

Cæsarean Operation successfully performed. (*Archives Generales de Medecine.*) An extract is given in this Journal from a late thesis of a Parisian graduate, M. Jolly, giving an account of the remarkable success which his father, a surgeon at Chateau-Thierry, has experienced in performing the Cæsarean opera-

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tion. He has operated six times, five of his patients being country women, and the sixth an inhabitant of the town. In all, the labor had lasted at least forty-eight hours before the operation was performed, and the waters had been discharged. In one patient only of the six no fatiguing attempts had been made by midwives or accoucheurs to finish the labor. He always made the incision on the linea alba, between the navel and pubes, and divided the uterus in the same direction, taking care to restore it first to the perpendicular position, if it was inclined. There was never any material hemorrhage; no patient, indeed, lost more than two ounces of blood. In dressing the wound he always had recourse to the gastroraphy, which, instead of producing the ill consequences usually ascribed to it, appeared to him always to contribute greatly to the cicatrization of the wound. In two of the six cases no untoward symptoms whatever followed the operation, and the cure was perfected before a month expired; in two others a smart degree of inflammation of the abdomen supervened, but was successfully combatted by venesection, baths, and fomentations; and the remaining two died evidently of metroperitonitis, one on the fourth day, the other at a later period, when there appeared every chance of her recovering under the antiphlogistic treatment. Of the six infants, four were born alive and survived, but two were dead after the operation was concluded, although they were thought to have been alive before it was performed. In no instance did hernia ensue; but there was always some prominence of the abdomen at the cicatrix, which had diminished from six inches in length to three only.—This is the most favorable statement which has ever appeared on the subject of the Cæsarean operation.—*Edinburgh Med. and Surg. Jour.*

Of the Incontinence of Urine. From Mr. Charles Bell's Treatise on the Diseases of the Urethra.—Is it beneath the dignity of the subject to inquire why children pass urine in bed? Many a little urchin might be spared his flogging if the very simple cure was known. I remember to have seen a child brought into the hospital, where a cord tied round the penis, to spare the jade who attended him the trouble of raising the child from bed, had cut through the urethra. Boys have been made miserable, during what should be the happiest period of life, from this circumstance alone. I have known a man of twenty, kept from a public education owing to the same cause. And very lately a young gentleman confessed, that when visiting neighbouring families in the country, he was under the necessity of sitting up all night, lest he should disgrace himself by passing urine in the bed. If all this will not prove the importance of the matter, I can add a case more professional and grave:—I have known a young man suffer a long and painful attendance on a surgeon, going through a course of medicine, with the use of bougies to remove this complaint, which he might have got rid of, as I shall show, by turning himself round.

[illegible] occurrence never takes place, but when the boy is asleep on his back; [illegible] cure is a simple one: he is to accustom himself to sleep upon his face or [illegible]ned, nor is he excited to dream of making urine while [illegible]

[illegible] is unaccountable, until we reflect on the position of this

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master spring of the muscles of the bladder—the sensible spot a little behind and below the orifice of the bladder. When a person lies upon his belly, the urine gravitates towards the fundus; but when he lies on his back, it presses upon this sensible spot, and distends that part of the bladder which is towards the rectum. If, when the bladder is full, we press upon the lower part of the belly, we feel very distinctly that the pain excited is in this spot near the orifice of the bladder. If, in a morning when inclined to sleep, we are sensible of a similar pain, and a desire to make urine, by a change of posture, turning so as to lie on the belly, the sensation, and the necessity of rising, are removed. When a child wets the bed, it is in consequence of a dream, excited by the irritation of this sensible spot of the bladder; it is cruel to chastise the child; and raising it frequently to make water does not mend the matter. But if the child be made to lie on the belly, or inclining to that position, with the cheek upon the pillow, the habit will be broken.

Boys are subject to a more serious incontinence, troubling them night and day, attended with inflammation and pain, and all the symptoms of stone in the bladder.

Stillicidium urinæ from want of action in the sphincter muscles, is generally owing to the same cause, an increased sensibility of this spot of the bladder.

Cephalalgia cured by the External Application of Cyranuret of Potassium.—M. Andral has employed the cynauret of potassium with complete success in a case of most intense cephalalgia, which had resisted for ten months the most powerful remedies (bleeding and seton in the neck, blisters and sinapisms.) The salt was employed in solution in the proportion of from six to eight grains to the ounce of distilled water, and compresses wet with this solution were applied for eight days to the forehead and temples.—*Gaz. Med.*

Hysteria.—Professor Chiappa states, that enemata of iced water immediately dissipate the symptoms which characterize the hystesic paroxysm.—*Annali Universali.*

Professor Pattison.—The following account of Professor Pattison, who has figured of late at the London University, and was formerly a medical teacher in this country, is from the pen of a highly respectable practitioner in Manchester, Eng. and was recently published in the Medical Gazette.

It was in 1812, if I am not mistaken, that Mr. Pattison, on the death of Allan Burns, whose demonstrator he had been and intimate friend, succeeded to the vacant Chair in College Street, I am able to speak with confidence respecting the estimation in which he was held during three successive courses of lectures, of six months each, which he delivered in the winters of 1814, 15, and 16. His class-room accommodated, but with some difficulty, 128 pupils. I well remember that there never was one seat unoccupied in a single lecture. My impression is, that he was regarded by the students generally as being by far the best teacher of anatomy in Glasgow: at a period, too, when, besides the University professors he had the late Dr. George Monteith as a competitor. He was particularly noted for minute and practical acquaintance with anatomy, and especially for his surgical anatomy. His demonstrations

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on the neek and face are not likely to be forgotten by those who had then the privilege of witnessing them.

Mr. Pattison's manner as a lecturer was inferior to that of his opponents. Monteith was a handsome man, with a graceful delivery; while the other, Professor Jeffrey, is [or was] one of the best-looking men I have seen, and remarkable in his physiological discourses—a branch to which he devoted too much of his course—for dignified and most attractive eloquence. Pattison spoke with a lisp, and his delivery was peculiar and somewhat monotinous, but—I speak in in the past tense, for I have not seen him for more than fourteen years—his language was sufficiently fluent, distinct and impressive: and those who were attentive to the *matter* which he so zealously uttered, as all the students, I believe, were, had no fault to find with the *manner*.

Mr. Pattison is still a young man, in the full vigor of his days. Of course, I cannot pretend to say that he *may* not be changed from what he was when he so honorably filled the chair of Allan Burns. Years, it has been said, teach wisdom. It is strange if he have indeed gone backward in attainments, when the young gentlemen, his auditors, few of whom, perhaps, are half his age, are so forward in knowledge. This is a mystery too profound for me to solve. Perhaps, but I speak with the greatest diffidence, there is one way of accounting for his recent incompetency as a lecturer. Sixteen years ago, students were less precocious and enlightened than they are now. They were modest, diligent, and many of them ardent, in the pursuit of professional knowledge. They formed themselves into clubs, it is true, but it was for literary and scientific purposes. They were then too simple to think of forming "Committees," in order to control and manage the affairs of their Teachers. It certainly, at that period, did not occur to them that they knew as much as their instructers. On the contrary, there were very many who lamented their ignorance, and who trimmed the midnight lamp that they might satiate their thirst for that honorable knowledge, which, in the case of several, with whom I am proud to claim acquaintance, has conducted them to eminence in their profession, and no less to deserved estimation as members of society. This simplicity of theirs—this dawn of intellect, in comparison of the noon-day intelligence of our present illuminated order of students—is doubtless why, in 1815, those who had sat at the feet of Allan Burns, could, when he was removed, still listen with deep interest to the accurate anatomical instructions of his friend and successor.

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Requisitions for Graduation in the various Medical Colleges in the United States.

Name of the University or College.	*Number of Courses of Lectures to be attended.*	*Time of study.*	*Length of the Course.*	*Age.*
1. Bowdoin College, (*Maine.*)	Two full courses —the last in it	Three years, including the time devoted to lectures.	3 Months. Commences the middle of February.	No regulation but no one under 21 yrs. has ever received a degree.
2. Dartmouth College, (*New-Hampshire.*)	Two full courses one at least in it.	Three full years—Including the time of attending lectures.	14 Weeks. Commences 1 week after the College Commencement (which is on Wednesday preceding last Tues. in August.)	No regulation
3. Harvard University, (*Massachusetts.*)	Two full courses.	Three years, under some respectable practitioner, including the time devoted to lectures.	4 Months. Commences 3d Wednesday in October.	21 years.
4. Berkshire Medical Institution, (*Massachusetts.*)	Two full courses —one at least in it.	Three years, including the time devoted to lectures.	15 Weeks. Commences first Thursday in September.	21 years.
5. Yale College, (*Connecticut.*)	Two full courses. N. B. Only one is required by statute, but the practice is as above.	3 years, if he has graduated, and four years if he has not.—The time devoted to lectures, in either case inclusive.	18 Weeks. Commences about the middle of October.	21 years,

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Further Regulations.	*Number of Professorships.*	*Authority.*
Thesis.—Examinations. Those who have not received a collegiate education, to satisfy the Faculty of their knowledge of Latin, and Natural Philosophy.—The Censors of the State Medical Society are joint examiners with the Professors.	4 Professorships. 1. Chemistry and Materia Medica. 2. Theory and Practice of Physic. 3. Anatomy and Surgery. 4. Midwifery.	Prof. Cleaveland, of said institution Statutes of do.
Thesis.—Examinations before the Professors and Delegates of the New-Hampshire Medical Society. An acquaintance with Natural and Experimental Philosophy and the Latin Language.	3 Professorships. 1. Anatomy, Surgery and Obstetrics. 2. Physiology, Theory and Practice of Phisic and Materia Medica. 3. Chemistry and Pharmacy. Medical Jurisprudence is divided among the Professors.	Statutes of the Med. Institution of Dartmouth College 1831. Prof. Mussey, of said College.
Thesis.—Examinations. Those who have not an academical education, to satisfy the Faculty of their knowledge of Latin and Experimental Phiiosophy.	5 Professorships. 1. Theory and Practice of Medicine. 2. Anatomy and Surgery. 3. Midwifery and Medical Jurisprudence. 4. Materia Medica. 5. Chemistry.	Statutes of the University relative to the degree of M. D. Prof. Channing, of said University.
Thesis.—Examinations before the Professors and two Delegates of the Massachusetts Medical Society. An adequate knowledge of the Latin language.	6 Professorships. 1. Theory and Practice of Medicine. 2. Medical Jurisprudence. 3. Theoretical and Operative Surgery. 4. Materia Medica and Obstetrics. 5. Anatomy and Physiology. 6. Chemistry, Botany, and Natural Philosophy.	Prof, Childs, of said institution.
Thesis. A competent knowledge of Latin and Natural Philosophy. Examinations before the Professors and an equal number of Delegates from the State Medical Society.	6. Professorships. 1. Chemistry and Pharmacy. 2. Anatomy and Physiology. 3. Theory and Practice of Medicine. 4. Materia Medica and Therapeutics. 5. Principles and Practice of Surgery. 5. Obstetrics.	Baldwin's Annals of Yale College, pp. 180 and 223. Prof. Tully, of said College

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Name of the University or College.	*Number of Courses of Lectures to be attended*	*Time of study.*	*Length of the Course.*	*Age.*
6. BROWN UNIVERSITY, (*Rhode-Island.*)	"A regular course of Medical Lectures is not at present deliverod in it. Its terms of Graduation were precisely similar to those of Yale and Dartmouth.			
7. UNIVERSITY OF VERMONT.	Two full courses —the last in it.	3 years, including lecture terms, with a regular practitioner.	14 WEEKS. Commences August 8.	
8. VERMONT ACADEMY OF MEDICINE.	Two full courses —the last in it.	3 years including lecture terms, in some med. school or with some respectable practitioner	15 WEEKS. Commences on the third Thursday in Augvst.	21 years.
9. UNIVERSITY OF PENNSYLVANIA.	Two full courses, "and one course of clinical instrution in the Phil. Almshouse Infirmary, or the Penn. Hospital or some other institution approved of by the Faculty of Medicine. Students who attended one complete course in a respectable Med. School, where the attendance on 2 complete courses is necessary for a degree, & where the same brances are taught as here, are admitted as candidates by an attendance on one full course only."	3 years, "and during that period must have been the private pupil for two years at least of a respectable practitioner."	4 MONTHS. Commences 1st Monday in November	21 years.
10 JEFFERSON COLLEGE, (*Pennsylvania.*]	Two full courses —one at leat in it.	Three years, *including* the time of attendance on lectures.	4 MONTHS. Commences 1st Monday in November	21 years.

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Further Regulations.	*Number of Professorships.*	*Authority.*
		Professor Parsons, of said University.
Thesis.—Examinations.	4 Professorships. 1 Nat. Philosophy, Chemistry and Pharmacy. 2. Anatomy Botany and Materia Medica. 3. Physiology, Pathology & Practice of Medicine. 4. Surgery and Obstetrics.	Circular of the Faculty, May 1831.
Thesis.—Examinations before the Faculty and the Delegates of the State Medical Society.	5 Professorships. 1. Theory and Practice of Medicine and Materia Medica. 2. Surgery and Obstetrics. 3. Anatomy and Physiology. 4. Chemistry & Nat. History. 5. Natural Philosophy.	Circular of the Faculty.
Thesis.—Examinations.	6 Professorships. 1. Anatomy. 2. Institutes and Practice of Medicine and Clinical Medicine. 3. Surgery. 4. Materia Medica and Pharmacy. 5. Chemistry. 6. Midwifery and Diseases of Women and Children.	Official catalogue of the officers & students of the University of Pennsylvania, 1830-31.
Thesis.—Examinations.	7 Professorships. 1. Anatomy. 2. Surgery. 3. Practice of Medicine. 4. Chemistry. 5. Materia Medica. 6. Obstetrics and Pharmacy. 7. Institutes of Medicine and Medical Jurisprudence.	Professor Green, of said College.

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Name of the University or College.	*Number of Courses of Lectures to be attended.*	*Time of study.*	*Length of the Course.*	*Age.*
11. UNIVERSITY OF MARYLAND.	To attend two winters, and take during that time all the tickets at least once.	Not noticed.	4 MONTHS. Commencing first Monday in October.	Not noticed.
12. WASHINGTON MEDICAL COLLEGE, Baltimore.*	To attend two winters, and to take during that time all the tickets at least once.	Not noticed.	4 MONTHS. Commencing first Monday in October.	No rule—but none have been graduated under 21 yrs. and will not be.
13. COLUMBIAN COLLEGE, *District of Columbia.*	Two full courses—one at least in it.	Three years, including the time devoted to lectures.	4 MONTHS. Commences 1st Monday in November.	21 years.
14. UNIVERSITY OF VIRGINIA.	Three courses—one at least in it.	Three years.	10 MONTHS. Commences September 10	21 years.
15. MEDICAL COLLEGE OF SOUTH CAROLINA.	Two full courses—one at least in it.	Three years, including the time devoted to lectures.	5 MONTHS. Commences 2d Monday in November.	21 years.

* The degrees in this institution are conferred by Washington College, Pennsylvania.—"The degrees so granted are respected and placed by the State Faculty of Maryland, upon an equality with diplomas from all other respectable Colleges."—*Professor Jameson.*

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Further Regulations.	*Number of Professorships.*	*Authority.*
Thesis.—Examinations.	7 Professorships. 1. Theory & Practice of Med. 2. Materia Medica. 3. Obstetrics and Diseases of Women and Children. 4. Institutes of Medicine. 5. Surgery. 6. Anatomy. 7. Chemistry.	Prof. N. R. Smith, of said College.
Thesis.—Examinations.	6 Professorships. 1. Surgery. 2. Therapeutics and Materia Medica. 3. Obstetrics and Diseases of Women and Children. 4. Theory and practice of Medicine. 5. Anatomy & Physiology. 6. Chemistry and Medical Jurisprudence.	Prof. Jameson, of said College.
Thesis.—Examinations.	6 Professorships. 1. Anatomy and Physiology. 2. Theory and Practice Medicine & Clinical Medicine. 3. Materia Medica & Med. bot 4. Obstetrics. 5. Chemistry. 6. Surgery.	Professor Sewell, of said College.
Examinations.	3 Professorships. 1. Medicine and Medical Jurisprudence. 2. Anatomy and Surgery. 3. Chemistry & Mat. Medica.	Prof. J. A. Smith, of New-York,
Thesis.—Examinations	7 Professorships. 1. Anatomy, 2. Surgery, 3. Institutes & Prac. of phys. 4. Obstetrics and Diseases of Women and Children, 5. Chemistry and Pharmacy, 6. Materia Medica, 7. Pathological & Sur. Anat.	Professor Wagner of said College,

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Name of the University or College.	*Number of Courses of Lectures to be attended*	*Time of study.*	*Age.*	*Length of the Course.*
16. TRANSYLVANIA UNIVERSITY, (*Kentucky.*)	Two full courses—one at least in it. If the caudidate shall have practised medicine creditably for four years, then one course shall be sufficient.	Not noticed.	21 years.	4 MONTHS. Commences 1st Monday in November
17 MEDICAL COLLEGE OF OHIO.	1. Satisfactory certificates of having studied medicine with some respectable practitioner three years, and of having attended two full courses of lectures—or, 2, of having attended 3 full courses of lectures, and studied as before, all the time between them—or, 3, of having been in regular and reputable practice 4 years, and of having attended one full course of lectures. In all these cases, the last course, at least, in this institution.			4 MONTHS. Commences last Monday in October.
18. MEDICAL INSTITUTE OF THE STATE OF GEORGIA.	The "Medical Academy of Georgia," was incorporated Dec. 20, 1828, with Powers to grant the degree of BACHELOR OF MEDICINE, after one year's attendance in said institution and due examination. These graduates were allowed to practice medicine and surgery within the state,—the same as if licensed by the Board of Physicians. By an act passed Dec. 19, 1829, the Medical Academy of Georgia had its title changed to that of the "MEDICAL INSTITUTE OF THE STATE OF GEORGIA." The trustees and professors and teachers of said institution, to constitute a board, which is empowered to grant the degree of M. D. to all applicants, according to the regulation that			
19 & 20. UNIVERSITY OF THE STATE OF NEW-YORK. 1. *College of Physicians and Surgeons, New York*	Two full courses—the last in it.	Three years.	21 years.	4 MONTHS. Commences 1st Monday in November.
3. *College of Physicians and Surgeons, Farfield.*	Two full courses—the last in it.	Three years.	21 years.	16 WEEKS. Commences 1st Tuesday in October

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Further Regulations.	*Number of Professorships.*	*Authority.*
Thesis.—Examinations.	6 Professorships. 1. Theory & Practice of Med. 2. Institutes of Medicine, Clin. Med. & Med. Jurisprudence 3. Anatomy and Surgery. 4. Obstetrics and Diseases of Women and Children. 5. Mat. Med. & Med. Botany. 6. Chemistry and Pharmacy.	Professor Caldwell of said University
Thesis.—Examinations.	8 Professorships. 1. Anatomy. 2. Chemistry and Pharmacy. 3. Surgery. 4. Materia Medica & Botany 5. Obstetrics & Dis. of W. & C. 6. Theory & Practice of Med. 7. Institutes of Medicine and Medical Jurisprudence. 8. Clinical Medicine.	Western Journal Med. and Phys. Sciences, for July, 1831.
they may adopt—Provided however, that said degree shall in no case be conferred on any person who has not attended two full courses of lectures in the institnte, or one course in some respectable Medical College or University, and one in the institute, in addition to the usual term of private instruction, required by other institutions of a similar kind. N. B. The committee have not noticed the appointment of Professors in said institution.		Session laws for 1828 and for 1829 (in the State Library.)
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Thesis.—Examinations.	5. Professorships. 1. Obstetrics and Diseases of Women and Children. 2. Chemistry & Mat. Medica. 3. Theory & Practice of Physic and Med. Jurisprudence. 4. Anatomy and Physiology. 5. Surgery.	

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THE

TRANSYLVANIA JOURNAL

OF

MEDICINE

AND THE ASSOCIATE SCIENCES.

FOR JULY, AUGUST AND SEPTEMBER, 1832.

Original Communications.

ARTICLE I.—*Thoughts on the Pathology, Prevention and Treatment of Intemperance, as a form of Mental Derangement.* By CHARLES CALDWELL M. D.

THE present age has no parallel, in all preceding ones, for the number of its valuable and praiseworthy institutions, designed to ameliorate the condition of man. To the truth of this, history, and other forms of authentic record fully testify. Nor do the activity and zeal, with which those associations are administered, fall short, in degree, of the benevolence which prompted, or the wisdom which planned them. Many of them therefore have been eminently successful, in the attainment of the ends for which they were established.

Of the societies erected for the suppression of intemperance and its concomitant evils, this would seem to be emphatically true. Their salutary influence is already conspicuous, and their prospect of future usefulness extending and brightening. If appearances and reports be not deceptive, these institutions, recent as is their origin, and comparative-

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ly limited their extent, have already done much more for the benefit of our race, than many others that treble them in age. Some reformations from ruinous habits have been already produced by them, there is cause to believe, that in many more instances the formation of such habits has been happily prevented, and reasonable ground is given to anticipate a multiplication of such fortunate results. It is from a sincere desire to contribute my mite, however small, to the promotion of so laudable and interesting a cause, that I ask the attention of the reader to a few thoughts on the subject of INTEMPERANCE.

It is not my purpose to attempt to *dissuade* sots and bacchanals from the perpetration of this hateful animal enormity, by representing in strong lines, or glowing colours, either the irremediable personal degradation, or the deep and hopeless domestic affliction, which a perseverance in it produces. Nor shall I make an effort to *drive* them from it, by sternly threatening them with the vengeance of Heaven, on account of its criminality. Neither shall I unite with writers and declaimers on the subject, in reiterating, for the hundredth time, its ruinous effects, in a statistical point of view. Attempts of this sort I leave to others, to whose province they more properly belong, and shall recommend the trial of different means for the extinguishment of the evil.

By a liberal but fair interpretation of the term, intemperance admits of a much more extensive meaning, than is usually attached to it. It includes all excess, not only in the use of intoxicating liquors, but also in eating, in the exercise of the passions, and in the indulgence of any of the animal propensities. By inordinate excitement, even the moral faculties themselves may be fired to intemperance, and converted into sources of irregularity and mischief. It is my wish, therefore, to imbue this article with somewhat of the spirit of the Great Apostle, when he issued the exhortation, "Be temperate in all things."

The passion of love may glow with intemperate heat; its intensity may become so excessive, as to render it,

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for a time, the despot of the mind, and the torment of the heart; the system may wither and dissolve under its dominion; or it may lead to some dark catastrophe of guilt. A paroxysm of causeless and inordinate resentment, or of uncontrolled rage, is as gross intemperance, as a fit of intoxication. And we are invoked as earnestly, by the decorum of civil and cultivated life, and as solemnly warned, by morality and religion, to guard against the former as against the latter. Envy, jealousy, malice, and the love of gain, may all be heightened to the pitch of intemperance. Health and reputation may be subverted by them; the mind may canker, and the body decay under their influence; the harmony and well-being of society may be disturbed by them; and they have brought calamity and desolation on communities and nations. In their nature they are as debasing, as the intemperate use of intoxicating drink; in their spirit they are much more deeply tinctured with the elements of vice; and they often surpass it, in the extent of their mischief. Let those who pamper them, then, while they are gravely denouncing drunkenness in others, as a scandal and a vice, remember that they are nurturing within themselves, as deadly a foe to virtue and happiness. And, while they are anxious to extract the mote from their neighbour's eye, let them not be unmindful of the beam in their own. I am justified in adding, that religious feeling itself,—a feeling at least so denominated,—having been sublimed into passion, has often turned to a spirit of persecution, and led to the perpetration of acts of horror. This is intemperance combined with profanity; because it importunes Heaven to sanction deeds that are disgraceful to earth.

Intemperance in eating is too universal among us either to meet censure, or attract notice, except in very extraordinary cases. Worse still. Its universality prevents the recognition of its existence, and even leads to a denial of it. Yet, that it does exist, is proved by the fact, that one American eats, on an average, nearly or quite as much as two Swiss, or two Highlanders, who are among the hardiest and stoutest of

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our race. In this land of plenty and freedom, where man is master alike of his stores, his actions, and his time, he who should condemn his neighbour for excessive eating, would, at the same time, condemn himself, as being equally guilty of it. It is indeed our most besetting sin against ourselves, a principal source of our ailments, and therefore a serious impediment to our efficiencies both bodily and mental. But every act we intentionally perform, which detracts, in any way, from our capabilities to do good, is a violation of our duty to society, whose welfare we are bound to promote, by faithfully devoting to it our health and strength, instead of wasting them in animal indulgences.

Intemperate eating, as already intimated, is perhaps the most universal fault we commit. We are all guilty of it, not occasionally, but habitually, and almost uniformly, from the cradle to the grave. It is the bane alike of our infancy and youth, our maturity and age. It is infinitely more common than intemperance in drinking; and the aggregate of the mischief it does is greater. For every reeling drunkard that disgraces it, our country contains one hundred gluttons—persons, I mean, who eat to excess, and suffer by the practice. It is not contended that all *gourmands* ruin themselves as soon, as certainly, and as utterly, as all *sots* do. But it is believed that the vast superiority of the former, in number, more than counterbalances the superiority of the latter, in faultiness, and throws the preponderance of mischief into the scale of gluttony. How, indeed, can the case be otherwise? while children and youth are admonished against drinking too much, and warned of its immorality and destructive effects, they are regularly taught, and often hired, to over-eat themselves, from their birth. Do you ask me for evidence in proof of this charge? Go to our dining-rooms, nurseries, fruit-shops, confectionaries, and pleasure-gardens—go even to sick-rooms, and you will find it in abundance. You will witness there innumerable scenes of gormandizing, not only productive of disease in those concerned in them, but, in many instances, offensive to beholders. The frightful mess often consists of all sorts of

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eatable materials, that can be collected, and crowded together; and its only measure is the endurance of appetite, and the capacity of the stomach. Like the ox, in rich pasture-ground, or the swine at his swill-trough, men stow away their viands, until they have neither desire nor room for any more. I do not say that such eating matches always and every where occur among us. But I do say that they occur too frequently, and that they form fit subjects for caricature pictures, by European tourists, of our domestic manners. I add however, that similar scenes present themselves in every country I have visited, where provisions are abundant and cheap. The hungry consume what is set before them, obedient to the keenness and continuance of their desires, rather than to the dictates of reason or experience. The Americans then are not alone the slaves of appetite. The people of every nation that can freely indulge themselves are equally so; and they are equal sufferers by the intemperate practice.

But civilized man often eats from other motives than hunger, and injures himself by the custom. And he is the only animal that does so. While every being of an inferior order takes food in obedience to the cravings of appetite, he, in addition to this, eats for *amusement*, *for fashion's sake*, *on account of the savoriness of the article consumed*, and from *good fellowship*, *and to oblige a friend.* All that is eaten from these inducements, (and the amount is enormous) is unnecessary for subsistence, and may be correctly charged to the account of intemperance. To convert the superfluous mass of aliment thus swallowed into chyle, is toilsome and debilitating to the digestive organs. Nor is this all. When they have succeeded in their exhausting labour, further mischief arises from the general repletion of the system, which they have produced. Having been compelled, by the superabundance of alimentary matter thrown into them, first to injure themselves, by hard labour, they are compelled next to oppress and injure other parts of the body, by the corresponding superabundance of chyle which they form.

But are the digestive organs always able to convert into

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chyle, the ponderous and heterogenious mass of food, with which they are thus loaded? Far from it; and hence arises another form of mischief. A party of young people meet by accident, in the evening, at the house of a friend, and the tempting fruits of the season, with luscious preserves, and perhaps a decanter of wine, as a digestive, are set before them. Here commences an eating match, for mere amusement and merriment, each individual present having previously taken the customary evening repast. Yet the quantity consumed is often surprising—sufficient to satisfy the hunger created by a fast. In another instance a much larger party (were not the term inelegant I might call it a *crowd*) meet by invitation, with buoyant spirits, and in their best attire. But fruit alone is not their only fare. The entire magazine of cookery and confectionary is opened to tempt them. And the temptation succeeds. The amount and multifariousness of palling and indigestible matter passed into the stomach, mingled with lemonade, wine, and liqueurs, is frightful. The digestive organs of the ostrich alone could master it, and turn it to wholesome nourishment. The human organs are unequal to the task. Hence the beginning of mischief and misery. At a late hour the party breaks up, and the members of it return to their homes; but not all of them to the enjoyment of pleasing recollections, or quiet slumbers. Of the members of the small incidental party the same is true. Dyspepsia, in one or another of its various shapes visits many of both parties. One is attacked by a distressing nausea, another by a severe cramp, a third by colic, a fourth by diarrhœa, and a fifth by cholera, while a sixth, falling into a disturbed sleep, is tormented by frightful dreams, or almost smothered by the night-mare. The suffering is great, and in many instances the danger is no less. And all from what cause?—From eating for amusement, and fashion's sake, or because the food is pleasing to the palate. This is no fancy-piece, but a copy from life.

Shall I be told that excessive drinking is much the more faulty and reprehensible of the two, because it deranges the

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mind, and leads more certainly to other irregularities? That, I reply, is true; but, as some counterbalance to it, excessive eating is the grosser and more bestial. It is further beneath what belongs to humanity, and is, in the same degree, more unworthy of man. The romantic excitement, sportive hilarity, self-complacency, and visions of bliss, which accompany incipient intoxication, offer some temptation to the practice of it,—many think a very strong temptation—if they do not even detract from the magnitude of the fault. But overeating admits of no palliation. It is essentially and entirely grovelling, unrelieved by any thing etherial. It begins deliberately, in mere animality, proceeds without wit or song or joyous revelry, and ends in unseemly satiety and hebetude. There is nothing mercurial in it. All is saturnine and repulsive, from beginning to end. It moreover often leads to intemperate drinking. To promote digestion, extinguish a thirst invincible by water, dissipate vapours, and remove the weight that presses like an incubus on the wheels of life, alcohol is resorted to. Some relief from the torpor of repletion being thus experienced, the exciting potion is repeated, and increased in quantity, until ultimately a habit of intoxication is formed. Instances of this sort are too frequent and familiar, to have their existence questioned, or to need a recital.

Am I asked what are the evidences, by which it may be known, and what the injurious effects of excessive eating? I reply, they are numerous and various. Some of its signs, at the close of a meal, are a feeling of satiety, as already mentioned, a sense of gastric weight and fulness, slight stitches or pains in the same region, a disinclination and unfitness for motion of body or action of mind, and a paleness or a flushing of the face, with a strong and growing inclination to sleep. Those who experience these symptoms, or any of them, soon after dinner, or any other meal, have eaten intemperately, and thereby, to gratify an animal propensity, impaired, for a time, their efficiencies in the discharge of higher duties. And, by the daily repetition of

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this, they not only consume, in an equivocal and useless state of existence, a large amount of time, but ultimately produce in themselves, and entail on their descendants, disease and suffering. No one, whether sick or well, should gorge himself, at table, until his appetite will receive no more. So far as he does this, he plays the *animal*, forgetful of the *man* —I might have said, to the *disgrace* of the man.

The further evils of intemperance in eating constitute a long and frightful catalogue of maladies, some of them as loathsome and fatal, as any that are incident to human nature. Dyspepsia, hypochondriasis, gout, rheumatism, dropsy, jaundice, colic, cholera, epilepsy and other convulsive affections, madness, shapeless obesity with an approach to idiocy, foul and offensive eruptions on the skin, and successive crops of Lazar-like ulcers, make a part of them. And, to consummate the mischief, these complaints are communicated to posterity. Intemperate meals, moreover, are often the exciting cause of fatal attacks of fever, and even of pestilence. To physicians of experience this truth is abundantly familiar. Nor is it less so, that the relapses which so frequently occur, in convalescence from disease, are usually referable to the same cause. On this ground alone repletion from food is not only a source of great suffering, but a wasteful outlet of human life. In fine; by excessive and luxurious eating, many persons convert themselves into gross and useless masses of animality, retaining but little of man about them, except the bloated and dishonored form—Intellectual and corporeal vigour is alike extinguished in them, and even their moral qualities are lamentably obscured. Such is gluttony, except that the reality surpasses the picture, in all that is odious.

The immoderate use of tobacco is another form of intemperance not only injurious but peculiarly offensive. It is the offspring of one of our most humiliating propensities; that which calls for some sort of corporeal stimulation, as a substitute for dullness or destitution of thought. It has its origin in mental inanity; and a similar emptiness accompanies its continuance. The tobacco-sot's devotion to his twist, his ci-

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gar, or his snuff-box, arises from the same motive, which induced the poet's idle lack-brain to resort to music;

> "He trudged along, *not knowing what he sought,*
> "And *whistled* as he went, *for want of thought.*"

Persons engaged in any thing interesting do not need the stimulation of tobacco. Nor have they a craving for it. The reason is plain. Being under the influence of a higher impression, they do not feel the want of a lower one. The practice is therefore the idler's and the empty-head's resort. It is an evidence, I repeat, of mental vacancy, and amounts to a virtual acknowledgment, on the part of those who pursue it, that they are either deficient in intellect and taste, or miserably wanting in the correct employment of them.

Tobacco is peculiarly offensive to the animal kingdom. All that is elegant among the insect tribe fly from it, as a weed which they dread and abhor. No bird distinguished for beauty of plumage or sweetness of song is seen in its vicinity. The vulture itself, that feasts on carrion, is reluctant to take its nauseous meal in the midst of it; and even the hog, the personification of whatever is gross and tasteless among quadrupeds, turns from it with loathing. I know of but three sorts of animals that delight in it; the tobacco-worm, one of the filthiest and most disgusting of crawlers. The rock-goat, of Africa, whose foulness of odour and filthiness of habit make it an object of aversion, which every thing shuns; and man, who has been pronounced, and truly so, "the glory, jest, and riddle of the world". As respects the two former kinds of tobacco-mongers, they have rarely crossed my path, for good or for evil. Without further remark, therefore, I leave them to the enjoyment of their savoury food, and am inclined even to thank them, for the portion they destroy of a commodity, which is much more offensive than themselves. But the strange *human* love of a weed, which is so extensively detested by other beings, is worthy of a few additional remarks.

I shall not attempt to solve the question, so often discussed, which of the three modes of using tobacco, smoking, snuffing,

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or chewing, is most *disagreeable* and *injurious*? no one has ever asked, or thought of asking, which is the most *pleasing* and *salutary*? I shall only observe, that they are all injurious, especially when carried to excess, and that, under certain circumstances, each of them is, in its own way, offensive to good manners. It is as flagrant a violation of decorum, for a votary of the cigar, to blow tobacco-smoke into the face of a lady, or of a gentleman to whom it is disagreeable, as to annoy them by any other rude action or fetid smell. The deed, though of daily occurrence among us, is coarse and selfish. To gratify his own perverted taste, the smoker so far departs from common courtesy, as to offend the senses, and disturb the comfort of all around him, who have not, by habit, grown callous to his fumes. The very fact, that smoking is proscribed from all places of real gentility, ought to deter every gentleman from the practice. True self-respect forbids him to indulge in a factitious enjoyment, which drives him from the presence of the cultivated and the delicate. Is he travelling in a steamboat? he is prohibited from smoking, except on the hurricane-deck, or in some other place, to which the wind may have access, and sweep away the atmosphere polluted by his exhalations. Is he residing in a respectable hotel or boarding house? He must retire from the dining-room and the parlour, to his own chamber, to resort to a practice, proclaimed, by the restraint thus imposed on it, to be indecorous, and regale himself in solitude with an odour noisome to every one whose smell is not vitiated. Is he in a place of public amusement? He is forbidden to pollute any part of it, by his foul fumigation, except some lounge or obscure by-corner, the common haunt of vulgarity and vice. Thus is cigar-smoking thrust from polished, as petty-larceny is from moral society. And yet those who deem themselves well-bred gentlemen, and who would be offended even to blood, were their claim to that title called in question, persevere in the practice.

A ludicrous occurrence, connected with this subject, rises to my recollection. It took place in Philadelphia, about thirty years ago. An American citizen, distinguished alike for

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exalted intellect, refined taste, and polished manners, but unceremonious and stern in rebuking what was rude or wrong, had just returned from Europe, where he had resided, for a time, in the capacity of a public minister. From a constitutional peculiarity, he often sickened at the smell of tobacco. At a splendid dinner given to him, as a mark of respect for his public services and general worth, a clergyman of note, whose attachment to his glass and the "incense of the weed," fell but little short, in ardour, of his professional devotion, was seated by his side. The cloth being removed, and the wine in circulation, the descendant of St. Peter, his cigar in full and luscious blast, his eyes dewy almost to tears with delight, and his whole countenance beaming with the fumy enjoyment, turned to the ex-minister and, emptying a mouthful of smoke into his eyes and nose, eagerly inquired, "Pray, sir, do *gentlemen* smoke much in Europe?" "No, sir," replied the latter, clapping his handkerchief to his nostrils, and turning away his face, to escape suffocation, "nor in any other place."

In real filthiness chewing is still worse. A tobacco-chewer is essentially an unclean animal. His vocation necessarily renders him so. All the civet of the apothecary, mingled with the perfumes of "Araby the Blest," cannot sweeten him. The taint clings to him, like the poisoned shirt to Hercules, irremovable but by tearing off the flesh. No married man, or young man intending to marry, should ever chew tobacco. Even the rosy incense of love becomes infected by the odour. As relates to the practice, the old bachelor alone is a privileged being. As he renders himself as useless as possible, by cold-blooded celibacy, it is well that he should also be as disagreeable as possible, that no one may regret his choice and condition. Let him, therefore, instead of "nature's balmiest offering," the lip of beauty, press the nauseous morsel with *his* lips, and imbue himself with the essence of it, until the atmosphere around him becomes redolent of the plant, and his solitary dwelling smells like a tobacco-pouch.

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What shall we say of the intemperate* snuff-taker, his fingers, clothes, mustaches, lips, and nostrils abundantly overlaid with the "precious powder," which the wanton breeze, as it flits by him, maliciously sprinkles in his neighbour's eyes? What shall we say of him! Why, that he is any thing you please, but an object of attraction. Call him a fop, a dandy, a macaroni, a jack-pudding, a tobacco-pickle—any thing but a man of good breeding. To that title, neither his gold and diamond snuff-box, nor his graceful and courteous offers of the contents of it, give him a fair claim. The essence of good breeding consists in a liberal surrender of self, in matters of social intercourse, to the comforts and conveniences of others, and a constant endeavour to excite pleasing emotions in them, by suitable and well-timed acts of courtesy. In a particular manner, the well-bred gentleman never intentionally and causelessly does any thing disagreeable to those with whom he associates, but studies their gratification, in all his intercourse with them, and is himself most obliged in obliging them. But intemperate snuff-taking *is* disagreeable, because it is uncleanly, and selfish, because it is exclusively personal. Neither the sanction and example of the great, nor the approbation of the fair—no; nor even the latters' soiling themselves, and marring their loveliness, by participating in it, can defend it against this charge, purify a practice inherently unclean, or elevate that whose nature is degraded.

Nor is the mere offensiveness of intemperate snuff-taking its only fault. It is also a wasteful consumer of time. An accomplished snuff-taker—one, I mean, who has attained the summit of achievement and renown in his profession, devotes to it a tenth part of his life. A scrupulous observer and disciplined arithmetician has recently ascertained, by a rigid calculation, that one of these living tobacco-mummies had, in the space of forty years, spent two years in inhaling snuff, and two more in exhaling it. In the homely

* It will be observed that this censure is intended for *excessive* snuff-taking; not for the practice in a *moderate* degree. Yet, in every degree, it is "a custom much more honored in the breach, than the performance."

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but more forcible language of the reporter of this case, he had "wasted two whole years in tickling his nose, and two more in sneezing and blowing it." A terrible tax on the time of your full-bred snivellers! And when, as some do, the finished amateur of the "olefiant weed," indulges in smoking and chewing, as well as in snuffing, he devotes nearly a fourth of his time to the service of his idol. Another fourth must be necessarily consumed in selecting and testing the *materiel* of his pleasures, and in washing himself, dressing, and other measures of lustration and sweetening. For the various purposes of eating, sleeping, exercise, society, and amusement, the remaining portion is little enough. Thus runs the circle of his *animal* existence! Real *intellectual* existence is unknown to him. He has but one source of enjoyment beyond the tobacco-worm. Like him, that reptile chews tobacco, and snuffs its odour. Added to these, he smokes it; and there the superiority of this "mighty lord" of creation ends.

Nor is the intemperate use of tobacco an offensive and degrading practice only. It injures the health of those who indulge in it, often disqualifies them for the full discharge of their duties, and sometimes destroys them. A few of the most distressing and fatal forms of complaint which it produces, are dyspepsia, pulmonary consumption, marasmus, tremors, impaired vision and intellect, apoplexy, and palsy; and it aggravates many others. The range of its mischief therefore is extensive. One remark more, and adieu to the "weed." The excessive use of it often leads to intemperate drinking. It excites in its votaries, if not actual thirst, at least a hankering for stimulation. Hence among professed chewers, smokers, and snuffers, there are but few water-drinkers.

But I understand the chief object of the advocates of temperance to be, the suppression of the intemperate use of ardent spirits; or rather, the suppression of their use altogether, except for medicinal purposes. If I am correctly informed, the principles and rules of the Temperance Societies of our coun-

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try, do not forbid entirely the use of wine. Were they thus restrictive, I could not concur in them. Though no wine-drinker myself, and though convinced that the habitual use of that liquor is never necessary, as a means of health, but always pernicious, except perhaps to the enfeebled, I would not interdict the occasional and moderate use of it, to those who delight in it, any more than I would withhold from them the enjoyment of the flavour of coffee, or the fragrance of a rose. There is much of brilliancy and wit, of elegant refinement, and innocent pleasure, of lofty feeling and generous emotion, and of all that constitutes the poetry of life, connected with the culture and juice of the grape. The ideas and sentiments, arising from these sources, are often connected with our earliest and most cherished recollections of family and home, and of the fellowship of friends we may meet with no more. Nor is this all. They mingle also with our classical remembrances, and are hallowed by the relation they bear to the most solemn and endearing of religious observances. Thus have time and circumstances combined to consecrate, in some measure, the influences of the vine; at least, to render them lovely and venerable. Without them life would become less delightful and desirable than it is. Joy would be less buoyant and vivid, merriment less sprightly, and genius itself less etherial and radiant. Nothing short then of the fanaticism of the ascetic or the anchorite—a spirit of temperance sublimed to *intemperance*, would make war on them. It is even contended by many persons of experience and wisdom (and I am not prepared hastily to reject the opinion) that the moderate use of wine is salutary to those who are advanced in years. Like artificial fire, toward the going down of the sun, it tends to preserve in the system that warmth, vivacity, and vigour, which time is gradually wearing away. If it recalls neither the blossom of spring, nor the green foliage of summer, it gives a richer glow to the mellow hues of autumn, and makes them linger a little longer before they wither in the chills of winter. The aged Romans often

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protracted the evening of their lives, and rendered it more comfortable, by removing to the milder climate of Sicily, where they were secure from the frosty breath of the Alps and the Apennines; and many Spaniards have done the same, by transporting themselves, at an advanced age, to the sunny climates of Mexico and Peru. But what the beams of Apollo do, in those favoured regions of the earth, the gift of Bacchus, when used with judgement, is found to do in every region. By attempting then, to discredit the moderate use of wine, Temperance Societies would defeat their own purposes. They would bring discredit on themselves, and circumscribe their influence in the important concerns that properly belong to them. Genuine wine-sots, moreover, are of rare and even doubtful existence. Perhaps it might be affirmed that such beings have never existed. The excessive use of ardent spirits and habitual drunkenness seem necessarily connected, as cause and effect. Believing, therefore, as already intimated, that the suppression and prevention of that form of intemperance constitute the leading object of temperance institutions, I shall enter without further preface, on my proposed analysis of it. In the execution of my purpose I shall endeavour to show, what kind of an affection drunkenness is, and what its effects on human health are, wherein consists the sot's ungovernable appetite for ardent spirits, and how the entire evil may be prevented or removed.

Whether its features are considered individually or collectively, the entire aspect of the affection convinces us, that drunkenness consists in a morbid condition of the brain, the spinal cord and nerves being also affected. The same inference is, if possible, more clearly deducible from the appearances, after death, of those who fall victims to this disgraceful malady. But does the morbid condition extend alike to every part of the brain? or is it seated in some one portion of it, rather than in another? The affirmative of the latter question, and, of course, the negative of the former seem most likely to be true. In stronger terms, there is no doubt of their truth; and, were there time to dwell on the

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subject, reasons could be given to remove every suspicion to the contrary, that may be entertained respecting them. That I may be the better understood, therefore, in the exposition I am about to attempt, it is necessary, before proceeding further, that I make a few remarks on the brain and its divisions.

That organ, being the immediate seat of feeling and sentiment, as well as of every intellectual operation, is superior, in rank and influence, to any other in the body. By a law of the constitution, therefore, it controls every other, a circumstance alone explanatory of the phenomena of drunkeness, and interdicting emphatically all practices tending to impair its soundness and vigour. Instead of being a simple and homogeneous mass, it is now acknowledged, by all enlightened anatomists and physiologists, to be marked with great variety of structure and function. It is divided first into three compartments, the animal, the intellectual, and the moral, the former of these constituting its base. These are again severally subdivided into a number of inferior compartments or organs, each of which, differing from all its fellows, performs a function peculiar to itself. Nor can any of them assume, under any circumstances, the action and office of another.

To the animal compartment belong all those feelings that fall under the denomination of appetites, propensities, and passions. Of these may be specified, as being distinct and strong, and well calculated to illustrate my views, the appetites of hunger and thirst, or the desire to eat and drink, the propensities of self-defence, physical love, the love of offspring, and the passions of resentment, revenge, and a few others. These, I repeat, are seated in the animal compartment of the brain. They are all selfish; they point chiefly, I mean, to individual gratification; and some of them, when highly excited, are fierce and stormy.

To the intellectual compartment belong all those mental functions or modes of action, by which knowledge is acquired and applied to its purposes. These are numerous. Among them are included the processes of mind adapted severally to

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the cultivation of the knowledge of form, color, time, space, individualities whether objects or events, localities, music, number, and relations generally. In the performance of these operations, which are all different from each other, yet all essential in the pursuit of science, some of them to collect its elements, and others to arrange and class them, two orders of faculties are concerned, the Perceptive and Reflecting, the latter of which is the more elevated.

To the moral compartment belong the sentiments of benevolence, veneration, conscientiousness, hope, cautiousness, firmness, ideality, or a sense of beauty, and a few others, which need not be enumerated. Several of these are exclusively moral, and they are all sufficiently free from selfishness, and have a sufficient regard to the welfare of others, to be entitled to the name of social and moral faculties.

I have alleged that the morbid affection, which constitutes drunkenness, is seated more immediately in the animal compartment of the brain. This appears from the well known fact, that it is the animal appetites, propensities, and passions that are first and most strongly excited by it. But its effects are not confined to that compartment. Through that law of living matter denominated sympathy, which forms a vital tie between all parts of the system, they extend to the other compartments, until the whole brain suffers. I do not positively deny that the intellectual and moral organs are, in some measure, primitively affected by ardent spirits; hut they do not feel their influence either so early or in so high a degree, as the animal organs.

It is worthy of remark, however, that the three compartments of the brain are affected by intemperance in very different and even opposite ways. They sustain effects from it the very reverse of each other. While, by a certain degree of intoxication, the animal appetites are whetted and the functions strengthened, the intellectual and moral are weakened or subverted. Moral feeling is never heightened or purified by the influence of ardent spirits. The contrary is always and necessarily the case; and though the intellectual

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faculties may seem to be rendered, for a time, more sprightly and active by it, the excitement is evanescent, and is soon succeeded by confusion and dulness. But the animal propensities are augmented in intensity and strength, until they become often ungovernable. Hence the gross and lawless indulgences, to which the intoxicated abandon themselves—indulgences which their intellect would condemn, and from which their moral feelings would turn, with abhorrence, were they not perverted, debilitated, or reduced to inaction. This is confirmed by the sentiments of remorse and self-condemnation, with which the drunkard reviews his enormities, when he returns from a paroxysm of ebriety to soberness. He is once more a man; the attributes of humanity again bear sway; and he views with detestation and self-abasement, the abuses he committed, while the animal predominated in him. It is no mere figure in rhetoric, to pronounce a drunken man *a beast.* It is the expression of a philosophical truth. He has, by his own act, effaced, for the time, what alone entitled him to the appellation of a human being, and added strength to that which characterizes the beast. Bone, muscles, blood-vessels, and skin, moulded into a given form, do not constitute the man. Neither would he pass into man, by the mere addition of that compartment of his brain, which he holds in common with inferior animals. That alone united to his corporeal fabric, would render him a fell and dangerous monster. It would make him a Carib, a being as savage as a hyena, and as ferocious as a catamount. It is the reflecting and moral portions of his brain, more especially the latter, that lift him to the rank of real humanity. No physiologist will deny, that, could man be deprived of his moral and reflecting organs, without the loss of life, he would be completely brutified. But every one who becomes intoxicated, virtually inflicts this mutilation on himself. If he does not positively remove the moral and reflecting portions of his brain, he paralyzes them. Nor does he stop here. While he thus frees it from restraint, he, at the same time, I repeat, invigorates the cerebral compartment, which he holds in com-

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mon with the inferior animals, thus voluntarily degrading himself to their level, by a temporary effacement of what raised him above them.

Such, if I mistake not, is the philosophy of drunkenness. It might be defined, that condition of the brain, in which, by the abuse of intoxicating drink, human nature is subverted, and the animal exalted over the man. Its secondary or collateral effects—the reeling gait, the maudlin eye, the idiotic stare, the drivelling lip, the rancid breath, the convulsive hiccup, the muttered profanities and indecencies, which disgrace even speech, and the unsightly and nauseous discharges from the stomach—these indeed are odious and disgusting externals of the complaint. But they are only externals. And, as such, they are trifles compared to the *internal* affection—that which subverts the order of things that God has established—which gives to the inferior portion of the brain the supremacy over the superior, depresses morality and intellect below appetite and passion, and elevates animality above humanity—the brute above the man.

It is a law of our nature, that excitement and exercise invigorate every organ of our bodies, and strengthen our inclination to employ it in action. And in proportion as we persevere in thus employing it, will our disposition to that effect be augmented and confirmed. It is on this ground, that a propensity, moderate at first, may be converted into a passion difficult to be controlled, and a strong propensity rendered incontrollable. This law is as stable and operative, in its application to the brain, as to any other portion of our system. Is the sentiment of benevolence long and habitually indulged in deeds of charity? It grows into a passion, which supplants every other, and often seduces men into a ruinous waste of their means, by extravagant donations. Is the faculty of music, of poetry, language, or mathematics eagerly cultivated for a length of time, while other pursuits are neglected? By the same law the favourite study becomes so engrossing, as to abstract the attention from almost every thing else. Is any one of the animal propensities, as physi-

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cal love, or the desire of gain, inordinately indulged in? It takes an ascendency over all others, and becomes the tyrant of the mind. Is any person, of an irritable temperament, in the habit of giving way, on every occasion of slight provocation, to the passion of resentment or anger? It becomes, at length, ungovernable, and has, in many instances, passed into furious madness. Of the propensity to eat and drink, the same is true. It derives strength from indulgence. The *gourmand* and the sot think and dream of little else than its gratification. All this is as obviously the result of maintaining certain cerebral organs in a state of high and unremitting excitement, as the augmented strength of the blacksmith's arm is of his constantly wielding his hammer and sledge. And the whole depends on the change produced, by habitual stimulation, in the organization and vital endowment in the part exercised.

To the enlightened physiologist, these truths are too plain to require proof or further illustration. Nor is it less true and obvious, that the burning desire of the drunkard for spirituous drink, is a morbid affection of the brain, consisting in preternatural excitement and action; I mean of that portion of the brain, which constitutes the organ of *alimentation*—in which is seated the appetite for food and drink. That organ, I repeat, is in a state of preternatural excitement and morbid vigour, from previous indulgence in high exercise. The condition of it, therefore, amounts to as genuine a disease as inflammation of the eye, the lungs, or the stomach. And it may, and often does rise to the pitch of *insanity*. I mean insanity, as to that point; a disease that may be called, *monomania temulenta*—drunken monomania. When more general and inveterate, it turns to open *mania a potu*. That intemperance moreover is one of the most powerful and productive exciting causes of madness, in those who are predisposed to it, is a truth, which the history of every asylum for lunatics fully confirms. It also aids in maturing every other form of disease to which the subjects of it may be predisposed.

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In affixing the term insanity to that affection of the brain, which urges the drunkard, in opposition to his reason and better feelings, to the intemperate use of ardent spirits, I do not express myself either figuratively or extravagantly. I use the word in its literal meaning. Insanity consists in a morbid affection of the brain, and manifests itself differently, according to the seat of that affection. Is one of the moral organs diseased? The function, or mode of action of that organ is preternaturally increased, or diminished, or it is entirely perverted, according to the peculiar character of the affection. The same is true, in case of the diseased condition of an intellectual or an animal organ. The action of the diseased portion of the brain differs from its healthy action, either in kind or degree, or both. If the excitement of the organ be so intense, as to border on inflammation, its action is violent. If, on the contrary, the excitement be too feeble, or the organ be in or bordering on a paralytic condition, its action is correspondingly feeble, or entirely suspended. And when, in any case, the excitement and action of an organ are so vehement, that the faculty belonging to it gets beyond the control of the other faculties of the mind, and irresistibly impels the individual to extravagant, irregular, or unnatural conduct, madness exists. Nor is that form of madness less real, though it may be less striking, which arises from the deep debilitation, or the entire extinction of a faculty. In this all correct pathologists concur. To exemplify my position.

It often happens that a person of a peaceful and amiable disposition, becomes suddenly, and without any apparent cause, inordinately irritable and quarrelsome; or that one previously inoffensive and harmless, grows ferocious and dangerous, and attempts to commit murder, without any provocation. In both cases the individuals are insane; but the forms of their insanity are different. Why? Because the morbid affection productive of them, though the same in kind, and perhaps in degree, is situated in different portions of the brain. In the case of the former person, there is ex-

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cessive excitement in the organ of Combativeness; and in that of the latter, in the organ of Destructiveness. Transfer this excitement to the organs of Acquisitiveness and Secretivenes, and the effect produced will be a propensity to theft not to be resisted. Remove it again to the organ of Alimentativeness, and the individual will become intemperate in eating or drinking, or both; his appetite to that effect being too intense and powerful to be restrained. In each of these instances, the ground of intemperate action is the same. Different organs of the brain are under a degree of preternatural excitement bordering on inflammation. According to the function of the organ affected, is the character of the extravagant and irregular manifestation produced. The complaints, therefore, though apparently different, are substantially identical, arising as they all do from inordinate cerebral excitement. Each of them is a different sort of madness. They are all moreover to be remedied in the same way; and, by opportune and skilful treatment, they *can* be remedied.

Respecting the ungovernable force of the sot's appetency for spirituous drink, I do not speak unadvisedly or by conjecture; but from observation, and information derived from the most authentic sources. It is but a few days since I asked one of those unhappy mortals, in a solemn tone and rather rebuking manner, why he did not refrain from intoxicating liquor, when he daily felt and witnessed its ruinous effects on himself and his family? With a gush of tears (for his sensibility is not yet extinct) he replied to this effect. "Sir, I cannot refrain. I have within me a fiery craving, which would consume me, if I did not extinguish it, at times, with liquor. When it comes on me in full force, I should go mad, and drown myself to cool it, if I did not drink."

If these views be correct (and they have not been formed without consideration) the drunkard is as truly a monomaniac, as he who, sound in his other conceptions, believes his feet and legs to be made of glass or butter, or his head of copper; or that there is a living badger in his stomach,

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growling and scratching it. The sot can no more resist his propensity to drink ardent spirits, when set before him, if he be free from external restraint, than other monomaniacs can dissolve the hallucinations that beset them.

If I am not mistaken, then, the nature of drunkenness, and the source of the fatal appetite that leads to it, are not, in general, correctly understood. The consequence is, that unsuitable means are employed to remove them, and the effort fails. Drunkenness and its appetite are evils resulting no less from an organic cause, than an inflamed eye, or a lacerated muscle. And if they be removed at all, it must be in conformity to organic laws. The moral and intellectual means of advice, remonstrance, warning, and denunciation, avail but little if any more, in reforming from intemperance, than they would in the cure of a bilious fever, or the reduction of a dislocated bone. Yet they are the only measures (at least I know of no others) that are employed in the process. And their universal failure, which only shows their unfitness and misapplication, induces a belief that the complaint is incurable. Hence the limited number of reformations from drunkenness, when the habit is formed, and the unsuccessful issue of most attempts to prevent it, when its approach is first discovered. In the former case, men are warned, under fearful penalties, to abandon sottishness, and in the latter, not to commence it; while, in each case, the intense appetency for ardent spirits remains untouched. As well may the culprit on the rack be told not to agonize, or those suffering from phrenitis not to rave. And as soon shall the one obey, as the other. The reason is plain. In each case an attempt is made to remove evils, by causes that have no affinity to them. An effort to set fire to gunpowder, by pouring water on it, would scarcely be more preposterous.

I might here remark incidentally, that one of the most fertile sources of failure, in their various enterprises, is the mistakes men make, as to the nature and tendency of the means they employ to execute them. There are five distinct

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lines of causation or sequence, through which the business of life is transacted. They are moral, intellectual, organic, chemical, and mechanical. These lines are so entirely independent of one another, that they never interlock in their agencies. A cause belonging to one line never produces *directly* an effect in another. Each cause is felt *immediately* only in its own line. If its influence extend, at any time, to another, it is *indirectly*. A moral cause, for example, produces *immediately* only a moral effect, not an organic one; an organic cause, an organic effect, not a moral one; and an intellectual cause only an intellectual effect. Of the other sorts of causes, the same is true. Yet no incongruity presents itself to us more frequently, than an effort to produce effects of one kind, by causes of another; or to account for effects, belonging to one line of sequence, by referring them to causes that belong to another. To illustrate my meaning by a few examples.

Attempts are made even now, and they were much more frequent in former and less enlightened times, to prevent or remove pestilence, drought, and famine, which are physical evils, by moral influences. And inundations, earthquakes, and volcanic eruptions, which are physical effects, are represented as the product of the moral delinquencies of those whom they visit. Such calamities are erroneously thought to be stayed or removed, by moral observances. All notions of this cast deserve to be classed with astrology and witchcraft.

Am I asked, how drunkenness then is to be cured, and the tormenting propensity which leads to it, eradicated? I answer, by the same means, which are found successful in the treatment of other forms of insanity, where the cerebral excitement is preternaturally high. These are, seclusion and tranquillity, bleeding, puking, purging, cold water, and low diet. In this prescription I am seriouss; and if it be opportunely adopted and resolutely persevered in, I freely peril my reputation on its success. As a test of its correctness, give me the entire command of any one in a fit of intoxication, and I will

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speedily cure him of it. I will shorten his paroxysm, by more than the half of its usual duration, and his recovery from it shall be much more perfect than in former cases. This I will do by bleeding him, until he shall faint, or come very near it, puking him severely with tartar emetic, and bathing his head, neck, breast, and extremities, in cold water. This practice will immediately cool the fervour, and abate the inordinate action of his brain; and a subsequent sleep will set all things right. He will awake moreover without the head ache, dullness, and nausea, which so generally succeed a heavy debauch. Nor will he feel the same fervid desire to return to the bottle, and brutalize himself again, that he would do, had the fit been suffered to go off by degrees, without the use of means to shorten it. Let this process be repeated, as often as he shall relapse into intoxication, and, if he be not far gone in the evil, he will soon be reclaimed. Facts occur daily, to prove the efficacy of a free evacuation of the stomach, in shortening a paroxysm of drunkenness. The drunkard who vomits freely, recovers from his fit in a much shorter time, than he who does not. This arises not so much from the mere emptying of the stomach of the liquor swallowed, as from the effect produced sympathetically on the brain, by the emetic process. The excessive excitement of the brain is moderated by it, and the equilibrium of its action and faculties restored. If interrogated on the subject, the Resident Physician of the Kentucky Lunatic Asylum will state, that he finds, in the institution he superintends, no difficulty in curing *mania a potu* by the treatment here directed. Under this head I shall only add, that it is during the stage of high excitement of a paroxysm of drunkenness, that affusions of cold water can be beneficially employed. During the stage of torpor, when the temperature of the skin is rather below than above the standard of health, they are inadmissible. The other curative measures recommended are always useful.

But the condition of the habitual drunkard, whose fiery appetite drags him to the bottle, the contents of which can

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alone satisfy it, must be further considered. He is the subject of a chronic disease as positive, and, if not removed, as fatal, as pulmonary consumption. And that disease, as already stated, is monomania, brought on by the excessive and long continued excitation of his organ of alimentativeness, by his favourite drink. That organ is in a state of sub-acute inflammation, or in a condition nearly bordering on it, and hence the violence of its functional action. Hence, I mean, the uncontrollable appetency for spirituous drink, to which it gives rise.

In the removal of this complaint there is no more difficulty, than in the cure of a paroxysm of acute intoxication, provided the treatment is commenced at an early stage of it, and pushed with vigour. But, like all other maladies, it gains strength by delay, and becomes, at length incurable. It is perfectly analogous, therefore, to other morbid affections. Like them, it consists in a derangement of the structure or function or both, of organic matter, and has a local seat. Yet no particular seat has been heretofore assigned to it. Hence the loose and erroneous views, that have been entertained respecting it, and the insufficiency of the plans devised for its removal. Instead of being considered as located in any part of the body, it has been referred to some morbid condition of the mind, a depraved taste, a want of moral feeling, a profligate habit, or some other fanciful abstraction, divested of any definite meaning. And when the corporeal ravages of drunkenness have been spoken of, those of some other part of the system, rather than of the brain, have been most emphatically described, and most deeply lamented. The liver and spleen have been said to be enlarged, or indurated, or both, the pancreas pale and hardened, or unusually soft and engorged with blood, the mesenteric glands swollen and dense, the stomach inflamed, or its coats thickened and ulcerated, or perhaps in a schirrous state, the heart affected with ossification or aneurism, or predisposed to spasms, and the lungs adhering to the pleura, hepatized, or otherwise deranged in their structure. We are also told that the blood of drunkards is

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of a colour unusually dark; as if the unsound condition of that fluid had any primary or immediate agency in the production of the disease, instead of being the result of a pre-existing morbid condition of the solids of the body. But, as far as I am informed, a morbid condition of the animal portion of the brain has never been pointed to as the cause of the disease. In plain terms, the pathology of the complaint appears to have been misunderstood. Attempts to remove it therefore have failed, because they have not been instituted on solid ground, or directed by sound principles.

There is yet another light, in which intemperance generally, but more especially that form of it which consists in the excessive use of ardent spirits, deserves to be considered. It produces *premature old age*, and an increased liability to fatal attacks of epidemical diseases. This it does by wasting and weakening the preservative power of the system—that form I mean of vital action, which holds old age at bay, wards off the influence of deleterious causes, struggles with disease, when it has made its attack, and vanquishes it, if it is to be vanquished. It is rare that drunkards attain longevity; and they are the earliest victims of severe epidemics. The books, pamphlets, and periodicals of the day are filled with representations of this effect of intemperance, as respects cholera morbus; as if it were true only in relation to that complaint. But it is not so. It is equally true, in relation to every other. The intemperate are the first victims of epidemic bilious fever, yellow fever, typhus fever, and oriental plague. They also suffer more than others from severe exposure, and vicissitudes of the weather. In fine, their life-springs are feebler and less elastic than those of the temperate, and give way more readily, when subjected to pressure. The only person I ever saw die in a *second* attack of yellow fever was a drunkard. He had become intemperate subsequently to his first attack, else he would no doubt have died in that. It can scarcely be questioned that the extinguishment of the use of ardent spirits would add *twenty-five per cent* to the average of longevity throughout

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the civilized world. And the effect, in curtailing life, which the evil has produced in some savage nations is still greater. The deterioration of the human race resulting from spirituous drink is fearful. That poison not only brings parents to a premature grave, but enfeebles the constitutions and shortens the lives of their descendants. A sot is old at the age of fifty, decrepid at sixty, and at seventy, should he reach that period, an object of equal commiseration and disgust. His eyes are red and bleared, his nose swollen and inflamed, his face livid or speckled with scabs and pimples, his lungs oppressed with a phlegm as viscid as bird-lime, his nights sleepless, his limbs palsied, his intellect extinguished, and he is racked with a never-ceasing "bone-ache," the bitterest of the curses, which Timon, in his fiercest mood, threw back on the Athenians.

When indulged to excess, the passion of fear is similar, in these respects, to ardent spirits. It brings on prematurely the withered appearance, and not unfrequently the gray hairs of age; and, by exhausting the protective powers of life, increases the liability to disease, or acts as its exciting cause. The history of every pestilential epidemic furnishes matter in proof of this. Next to intemperate drinkers, those who indulge intemperately in fear are most frequently attacked. And they are next in liability to fall victims to the complaint. The spread and fatality of cholera are greatly augmented by this. Inordinate fear renders many persons of the higher orders of society as fit subjects for the disease as dissipation and unwholesome fare do those of the lower Hence the mischief done by alarmists. During the prevalence of the malady, to spread terror and dismay, by high-drawn pictures of calamity and death, is to fan a common burning into a fierce and wide-spread conflagration.

To me, I repeat, the requisite treatment of the complaint I am considering appears plain. The disease has been induced by an intemperate use of ardent spirits. That drink must be rigidly withheld, and no other stimulating beverage used as a substitute. The belief that spirituous liquors, in

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such a case, must be withdrawn gradually, or some active succedaneum adopted, is a fatal error. They must be abandoned wholly and at once, else they will never be abandoned. It is scarcely possible for an effort at a gradual retrenchment of them to succeed. Nor should any thing more stimulating than coffee be used in their place. Water is a still better substitute. In this change there is no danger, as experience has repeatedly shown. And if there ever were, it must notwithstanding be made, because nothing effectual can be done without it. To continue the use of ardent spirits, in the smallest quantity, tends to sustain the affection originally produced by them, and of course the ungovernable longing after them, the removal of which is the object aimed at. Shall I be told that *delirium tremens*, called also *mania a potu* will be induced by the sudden and entire abandonment of the long continued practice of intemperate drinking? On that score imaginary danger is magnified far beyond the real. The complaint dreaded seldom occurs. Besides, as already mentioned, it is easily cured. And when it has been removed, the treatment for habitual drunkenness may go on.

Let general blood-letting be employed, if indicated by a full habit, or an active pulse, and cups or leeches be applied about the base of the brain, in case any heat, tension, or uneasiness be felt, in that part of the head. Purgatives and emetics, or broken doses of tartarized antimony must be administered as may be requisite, moderate exercise in the open air should be taken, the tepid or warm bath will be useful, and the clothing should be such as to prove comfortable and maintain the healthy action of the skin. The diet used must be of the plainest kind, easy of digestion, and taken in moderation. Abstemiousness in all things is essential to a cure. Salt is the only admissible condiment. Every thing stimulating, whether solid or fluid, must be scrupulously withheld. Its use perpetuates the complaint. Nor will it be desired, when the excessive cerebral excitement is removed. It is that excitement which creates the craving for

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stimulation, as pimples on the skin cause it to itch; and stimulation, when permitted, sustains the excitement. Thus do the two act reciprocally, maintaining toward each other the relation of cause and effect.

The cure may be deemed complete for the time, as soon as all craving for strong drink and stimulating food shall have gone off, just as a paroxysm of ferocious mania is temporarily cured, when the patient becomes perfectly calm and pacific, and seeks solitude. And, by the measures directed, it may be made to do so, in a short period. Nor, under temperate habits, will it be more likely to recur, than any other form of madness. Insanity however, in every shape, is more or less periodical. In case of its return, a prompt repetition of the practice just prescribed will again subdue it.

To diminish greatly the prevalence of habitual intoxication, then, if not to eradicate it entirely, let it be universally deemed and publicly proclaimed a form of madness (as it really is) and dealt with accordingly. Hospitals erected for the reception of drunkards, and authority given to carry them there, and subject them to the requisite treatment, would be among the most important institutions that could be established. Perhaps no other public charities would equal them in usefulness. They would produce an immense saving of life, health, property, and reputation. The inmates of them should be kept engaged in some active occupation. This would not only compel them to support themselves, instead of subsisting on the property of others, as a great proportion of them do, when permitted to go at large; it would teach them habits of industry, inspire them with something of the pride of independence, and, by pleasantly and healthfully exercising their minds, contribute to their cure and restoration to society.

This scheme would do much good, through another mode of influence known to be powerful. The very apprehension of being accounted insane, and subjected, by authority, to such subsequent treatment, as might be deemed necessary, would have no slight effect, in deterring men from drunken-

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ness. Most persons have an innate and deep seated dread of being dealt with, as madmen. They would rather be accounted cunning knaves, or even dextrous felons, than idiots or lunatics.

Shall I be told, that society has no right to deprive drunkards of their liberty, by confining them in hospitals or houses of reformation? I reply that this is a mistake, arising from a misapprehension of the privilege of personal freedom. Provided it has the requisite *wisdom and will*, society *has* a right to defend itself against all grievous and dangerous nuisances. And drunkards are a much greater nuisance than common scolds, pigs running at large, cattle that use their horns offensively, or even rabid dogs. In fact they are among the worst nuisances that infest the world. The aggregate of evil they perpetrate is infinitely beyond that committed by all the robbers that lurk through our country, and all the pirates that scour our seas. Nothing short, then, of a spirit of freedom, maddened to licentiousness, can induce us to deny to society the right to protect itself from so flagrant a grievance. And, in the progress of general improvement, whose strides are so gigantic, I doubt not the time will arrive, when laws will be enacted to arrest, confine, and subject to medical treatment those who shall be addicted to drunkenness, in common with other descriptions of madmen. And, on the ground of humanity and public good, such a "consummation is devoutly to be wished."

Shall I be again told, that the evil of intemperate drinking must be suppressed by public sentiment awakened and directed by the influence of individuals, and institutions established for the purpose, and not by penal laws? In this view of the subject I cannot concur. True; under our government of popular freedom, and national will, public sentiment is the *spring* of every general and important measure. But of many measures it is *only* the spring, and, to attain the end in view, must have effective machinery to put in motion. And, in the present case, by far the most powerful part of such machinery would be laws judiciously adapted to the sub-

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ject. Did such laws exist, and were they strictly executed, intemperate drinking would be, in a short time, but a thing of history. Let both public sentiment and penal law be arrayed against it, and its suppression will be certain and almost instantaneous.

Will it be alleged that the requisite laws must themselves be the product of public sentiment, which is not yet prepared for such a purpose? This is true; and a leading object of Temperance Societies and individual exertions should be to bring about that preparation. Nor, if man be a reasonable, moral, and patriotic being, are means wanting to attain this end. Only let the people be convinced of the real magnitude of the evil to be removed, and of the efficacy of suitable laws in removing it, and the requisite legislation will follow of course. Why does society legislate against theft, arson, and murder? Because they are acknowledged to be great evils. But is mere public sentiment able to suppress them? No, certainly; else why enact laws for that purpose? Nor will puplic sentiment alone, without the instrumentality of laws, be sufficient to extinguish intemperate drinking. Let Temperance Societies hold this great truth in view, and steadily conform to it in their measures, and their labours will be rewarded with triumphant success. Suitable enactments, faithfully executed, would do more to extinguish existing drunkenness, and prevent its further production, in *five years*, than mere public opinion could in a *century*. A large portion of society disregards public opinion; but penal law, rigorously administered, makes every man feel it, who becomes obnoxious to it. I need only add, that long before the public can be induced so to frown on intemperance, as to *look it down*, they may be induced to pass laws to put it down by confinement and physic.

Am I asked, whether any further evidence can be adduced, showing drunkenness to be an affection chiefly of the animal compartment of the brain? I answer, yes; additional evidence can be attained in that way, by which we learn most certainly the seat of other diseases; *post mortem* exami-

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ination. It is found, by inspection, that the animal compartment of the brains of drunkards is in a more diseased condition than any other portion of them. It is more deeply injected or suffused with blood, more deranged in its organization, being preternaturally hard or soft, and much more frequently the seat of effusion than the superior parts of that organ. In those who have been long addicted to habitual intoxication, the animal compartment of the brain has been found preternaturally large, in proportion to the others, the latter being apparently wasted and diminished, in consequence of the former having appropriated to its own nourishment an exorbitant share of the blood. The reason of this is plain. The animal compartment has been kept, by intoxication, in the highest state of excitement, and therefore, by a law of organic nature, a superabundance of blood has flowed into it. By the same law the moral and intellectual compartments are defective in blood, a circumstance which necessarily enfeebles their functions. Another reason why we believe the animal compartment of the brain to be the chief seat of drunkenness is, as heretofore mentioned, that the animal faculties are much more strongly excited, during a fit of intoxication, than the moral or intellectual. Hence the boisterous and coarse carousals, and the degrading brutalities, in which drunkards indulge themselves. Finally; when persons habitually addicted to intoxication die of apoplexy, as they often do, it is almost always of the *basilar* kind—that form, I mean, which has its seat in the basis, or animal compartment of the brain.

Am I asked again, whether, like other sorts of madness, habitual drunkenness is hereditary? I answer, yes, and speak decisively. Every constitutional quality, whether good or bad, may descend, by inheritance, from parent to child. And a long continued habit of drunkenness becomes as essentially constitutional, as a predisposition to gout or pulmonary consumption. This increases, in a manifold degree, the responsibility of parents, in relation to temperance. By habits of intemperance, they not only degrade and ruin

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themselves, but transmit the elements of like degradation and ruin to their posterity. This is no visionary conjecture, the fruit of a favourite and long cherished theory. It is a settled belief resulting from observation—an inference derived from innumerable facts. In hundreds and thousands of instances, parents, having had children born to them, while their habits were temperate, have become afterwards intemperate, and had other children subsequently born. In such cases, it is a matter of notoriety, that the younger children have become addicted to the practice of intoxication much more frequently than the elder—in the proportion perhaps of five to one. Let me not be told that this is owing to the younger children being neglected, and having corrupt and seducing examples constantly before them. The same neglects and profligate examples have been extended to all. Yet all have not been equally injured by them. The children of the earlier births have escaped, while those of the subsequent ones have suffered. The reason is plain. The latter children had a deeper animal taint than the former. To this I shall only add, that, other things being equal, individuals, in whom the animal compartment of the brain preponderates in size, are more strongly predisposed to intemperance, than those in whom the moral or the intellectual preponderates. This is another ground of belief, that intemperance has its seat in the animal organs. Let the whole class of gross and habitual inebriates be examined, and it will be found that in four fifths of them native animality predominates. The unexampled preponderance of the animal compartment of their brain, is the reason why the Indians are so universally addicted to intoxication. From the same cause arises their inherent love of blood, and cruelty in war, as well as their insusceptibility of civilization. They have too much of the roving and ferocious wild beast in the organization of their brain, ever to become industrious manufacturers, honest and persevering traders, or peaceful cultivators of the soil.

But as respects drunkenness, in common with every other morbid affection, prevention is superior in value to cure. It

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is the duty of Temperance Societies, then, to extend their protecting care, in a particular manner, to the rising and subsequent generations. If they cannot reclaim every grossly intemperate adult, they can at least sow such good seed now, as may ripen into a glorious harvest hereafter. The most important inquiry, then, they can institute on the subject is, how may intemperance be most effectually prevented? A reply to this question, somewhat reasonable, if not satisfactory, may be rendered much more easily, than the measures it may recommend can be carried into effect, in the present condition of society. So stubborn is habit, and so slowly do settled prejudices give way, that amendment of antiquated errors must be gradual. A few remarks on the subject, however, may prove useful.

Measures preventive of all sorts of intemperance should enter as indispensable elements into every plan of education. Education should begin with early infancy; and it must be at first almost entirely organic and animal; it must consist chiefly, I mean, in the regulation of diet and drink, clothing, cleanliness, muscular exercise, the air breathed, and other things connected with the preservation of health. And, on these points, as on all others, first impressions and primitive habits are much more important than they are generally supposed to be. Solomon, in all his wisdom, never uttered a truer or wiser maxim, or one of more vital interest to our race, than when he said, "Train up a child in the way he should go, and when he is old, he will not depart from it." And this is as true of the process of alimentation, as of any thing else. If you wish to make, with certainty, a temperate man, guard with strictness the temperance of the child and the boy. Repress, as far as possible, every approach toward excess in eating or drinking. Stigmatize the act as dishonourable and degrading. Do this the more scrupulously and sternly, to children in whom the animal temperament prevails; in those, I mean, in whom the animal compartment of the brain preponderates. Children of this description are always most strongly inclined to gross indulgences, and often

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sicken from eating and drinking too much. Yet, instead of restraining and regulating their appetites, parents and others not only gratify them, but encourage them in their excesses. I venture to say that, in thousands of instances (had I said tens of thousands, I would not have spoken extravagantly) a foundation is thus laid in children, before their fifth year, (in many cases at a much earlier period) for their subsequent intemperance and ruin, as men. As relates to the rising generation, our country is a great *eating and drinking school*, where the teaching is *practical*, and *by example*. In this institution most adults have taken their degrees; and many of them have become industrious instructors in the art. It is idle to attempt to render children, boys, and youth, temperate, by mere moral precepts and religious discourses, while they are disciplined to intemperance, not only in fruit-stores, and cake and liqueur-shops, but at the family table. Example and practice always prevail over precept and exhortation. Every act of high stimulation of the animal organs of the brain, by diet or drink, whets and heightens the appetite for another, and that again for further excitement, until, at length, a habit of intemperance is formed, which leads to ruin. It was not thus that the children of the ancient Persians, Spartans, and Lacedemonians were taught temperance; nor will those of modern Americans ever learn it in such a school. If the youth of antiquity were initiated into it by the example of their elders, united to rigid personal discipline, so must those of our own and of future times, else they will be strangers to it.

During the time of lactation mothers and nurses are not only permitted, but often advised to drink porter, beer, and even toddy, that they may be able to furnish the infants more plenteously with nourishment. I will not say that this custom makes drunkards of infants; but it often sickens, debilitates, and destroys them, and hurries nurses into habits of intemperance. It should be frowned on and rejected, as inconsistent alike with delicacy, health, and sound morals.

Children are radically formed, for good or for evil, in the

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domestic circle; and their habits, I repeat, are commenced if not settled, at an early age. Let parents, therefore, set correct examples of temperance themselves, and so regulate their household, as to prevent all excessive indulgences, by all those who compose it, and the evil of intemperance, if not exterminated, will be greatly diminished. Let them, in a particular manner, abandon the habit of swallowing daily a little brandy or whiskey and water, before dinner, as a stomachic and provocative, and a little more during or after the meal, to aid digestion. This is one of the most insidious and dangerous practices pursued in our country, because it is deemed innocent. It will be adopted, and often pushed to excess, by those who constantly witness it, as certainly as man is prone to imitation. *Will* be, did I say? It *has* been thus adopted and pushed for ages; in the course of which it has made sots of millions, and reduced hundreds of thousands of families to want and beggary, with their fearful concomitants of degradation and crime. No one who fully understands the force of example should ever indulge in it. No one duly conscientious on the subject ever will. Added to other considerations, the practice is vulgar, and fixes a stain on the breeding of families.

Another family-custom, scarcely less pernicious, is that of inviting and even pressing visitants to *refresh* themselves, as the language is, by drinking ardent spirits and water. This has initiated thousands into tippling and sottishness. In many houses, especially those of comfortable livers in the country, the decanter, water-pitcher, and tumblers are as constant on the sideboard, as the sun is on his path. Every respectable visiter is invited to drink of this Circean beverage; and it is scarcely accounted good manners to refuse. Does the family physician call professionally, or as a friend? He *must refresh* himself *because he is fatigued.* At the next house, and at every house, where he stops, he *must* do the *same* thing for the *same reason.* This is the cause, why so many country practitioners become intemperate, and are lost to society. Nor is the country parson always unharmed. He also too often

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touches, tastes and handles, until the divine is lost in the man, and the man in the brute.

Let children, again, whatever may be their standing or prospects in life, be educated to some kind of useful industry. No matter, as to my present purpose, whether it be corporeal or mental. Let it give occupation, interest the feelings, and prevent idleness, and it will do much in guarding against intemperance. It will leave no vacancy in the mind, to be filled up by dangerous animal indulgences. Daily observation assures us, that idleness is as much the parent of intemperance, as of any other evil. Excitement in some shape is necessary to comfort; and the indolent resort to the bottle for that share of it, which they might better derive from some useful employment. Industry is one of the deadliest foes to vice and depravity of every description. It is in an equal degree therefore the friend of morality and virtue, tends to the formation of sound habits, and correct practical principles, and is thus among the greatest benefactors of our race. It is indissolubly connected with moderation in living. An industrious man has no time for luxurious indulgences. He soon therefore ceases to feel a desire for them. The reason is, that his alimentative organ loses its intensity for want of stimulation. Hence the promotion of industry, in every rank of society, would be one of the most effectual preventives of intemperance, and safeguards of all that is valuable to man. On this ground alone, independently of their influence on productive operations, and on individual health and strength, schools of industry would be invaluable institutions. I mean schools, in which the pupils might acquire habits of employing themselves in some interesting occupation, and learn to consider idleness as disgraceful.

In bringing moral lessons to bear on the subject I am considering, let them be so framed, as to be in harmony with the leading principles, and addressed to the strongest feelings of our nature. As among the most powerful and active of these, may be mentioned self-esteem, and the love of approbation,

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especially that form of the latter, which leads the sexes to covet and cultivate the good opinion of each other. The man who is indifferent to the regard of women, is fit only for the den of the misanthrope, or the cave of the anchorite. And the woman who is regardless of the esteem of men, is destined to any thing but usefulness and honour. While instructors and others, therefore, are representing intemperance as immoral and sinful, let them never fail to pronounce it also ignoble and degrading; calculated to shut us out from the good opinion and affection of our fellow beings, and thus prevent us from forming honourable connexions. Most men are much more afraid of dishonour than of vice; of forfeiting their standing here, than of periling their safety hereafter. I speak of things as they are, without inquiring how they might be, or ought to be; and experience has taught me that I am representing them correctly. Brags, swaggerers, and others of a like stamp, are even gratified and flattered, by being accounted dissipated and wild, if not actually wicked. But every one is mortified at being deemed ignominious. While moralists and religionists, therefore, are proclaiming that intemperance will subject its votaries to punishment in another world, let them never forget to add, that it will also render them objects of mockery in this. By thus arraying against the evil the resentment of Heaven and the scorn of earth, victory over it will be the more certain.

Were Temperance Societies divided into classes, according to the different occupations of their members, each class being charged with the duty of maintaining temperance among those of its own pursuit, much good might result from the arrangement. Let the class of labourers superintend the temperance of labourers, that of mechanics the temperance of mechanics, of farmers that of farmers, and of merchants that of merchants, until every class in society shall be under supervision. And let one of the penalties of intemperance be, a loss of standing, and a forfeiture of fellowship by the offender, among those of his own calling. A Hindoo will sacrifice his life, to preserve his cast. Under a

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well devised system of regulations, then, and the sentiments that might be made to grow out of it, would Americans be less tenacious of reputation? Nothing but a fair experiment can solve the question; and it does appear, that such an experiment is worth making. Another ground of influence, on which such a scheme would be likely to do good, may be stated. It would excite a spirit of competition and rivalry, on the score of temperance, between the several classes of the community, which, under proper restraint and direction, might produce the happiest effects.

Once more. Females are, in many respects, the arbiters of society. While they are virtually the censors of morals, they avowedly settle the principles and standard of decorum and manners. On these points, few have the hardihood to question their prerogative, or appeal from their decisions. Their judgement is final, and fixes the doom of the boldest offender. Their agency, therefore, in the suppression, but more especially in the prevention of intemperance, may be rendered invaluable. As mothers, their power in moulding the habits, and regulating the practices of children, is almost unlimited; and, as wives, sisters, daughters, and mistresses, their influence over men is scarcely less absolute. Let them direct their efforts faithfully, then, against intemperance, in every form, by averting it from the young, and frowning on it, in those of riper years, making it in every case, a fixed object for the finger of their scorn, and the result will be in the highest degree honourable to them, and beneficial to the world. They will do much more than has ever yet been done, and more than they are themselves prepared to anticipate, in achieving a triumph over an evil, which has itself so frequently and fatally triumphed over manhood, religion, and virtue. One happy and momentous issue of this will be, the procurement of relief to themselves and their children, from the immeasurable calamities and woes inflicted by the idleness and neglect, the wasteful dispositions and maddened tempers of drunken husbands.

It would be easy to recommend sundry other important

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measures tending to the discouragement and prevention of intemperance. Among these might be mentioned, the inducing of men to decline the distillation and vending of ardent spirits,—except for medicinal purposes—the withholding of that liquor from sailors, soldiers, and day-labourers, and hired workmen of every description, and the enlistment and employment of such only as willingly abandon it—the positive refusal, by the public and by men already in authority, to to confer places of honour, and emolument, either civil, military, or naval, on individuals addicted in the slightest degree to the use of spirituous drink—the giving a preference to such professional characters, other things being equal, as abstain entirely from the same article—and the prohibition by law of making any allowance for crimes committed during a state of intoxication. The carrying into effect, I say, as far as possible, these measures, against intemperance, might be highly useful. But they have been already so often and ably recommended in addresses, reports, and circular letters, published by Temperance Societies, that to dwell on them, at present, would be a waste of time.

Such are a few of my thoughts, hastily thrown together, and expressed in simple, but I trust intelligible language, on the subject of Intemperance. That they will be all and immediately received as correct, I am neither so vain nor so sanguine as to imagine. Perhaps they do not merit such a reception. But be that as it may, there is one reason, why some persons will admit them with great caution, and others probably reject them unexamined. They are tinctured with Phrenology, a science, which the uninformed and the illiberal have proscribed. However deep may be the regret which this excites in me, it neither mortifies nor discourages me. The path I have trodden for years, on this subject, has been carefully explored by me, in its character and bearing; I have reason therefore to believe that I understand it better than those who have never even approached it; and my confidence in its soundness and direction is unlimited. Its course is over safe and solid ground; and it will never allure

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me, by faithless phantom lights, into dangerous moors, or inextricable entanglements. I know Phrenology to be true, in its details, as well as in its principles, and surpassingly useful, in its application and effects. The Book of Nature, which is in the hand-writing of the living God, and bears on every page the ineffaceable impress of his glorious signet, amply testifies to its correctness, and, notwithstanding the thousand forms of obstinate and artful opposition it has encountered, the world is already experiencing its benefits. With all who have honestly examined it, its triumph is complete. If there be any labours of my life, in which I would presume to glory, they are those which mark me, as its steady adherent. And, should men, in after times, condescend to remember my name in kindness, their chief reason for the favour will be, that I have dared to be the friend of Phrenology, while most of my contemporaries have been its foes, and have never shrunk from raising my voice, or employing my feeble pen, in its defence, through every stage of the long, ungenerous, and embittered persecution it has been made to sustain.

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APPENDIX.

Directions for the prevention or mitigation of Cholera.

IT has been thought expedient to add, as an appendix to the foregoing paper, a few plain directions, for the *prevention* of Cholera, or the *mitigation of its severity*.

That disease not being contagious cannot be conveyed and propagated by the sick, nor by infected merchandise. It derives its existence from a deleterious condition of the atmosphere, the result of causes as far above human control, as those are which produce rain or snow, earthquakes or tempests. Nor are those causes known. Boards of health, therefore, by prohibiting personal intercourse between sickly and healthy places, occasion only inconvenience and mischief. It is confidently believed, on the ground of much experience, that, by such prohibition, they have never prevented a case of the disease. Their true province, in which alone their services can be useful, will be mentioned presently.

But although the vitiation of the atmosphere, from which Cholera arises, can be neither prevented nor extinguished by human means, there are causes under man's control, by which its malignity may be heightened, and its action rendered more certain and fatal. These causes consist in *filth* of every description. The disease commits its greatest ravages in places where impurities abound. This circumstance indicates the true province of Boards of Health—the recommendation and enforcement of general cleanliness, especially the purification of towns and cities from all substances, which, by running into a state of putrefaction, may generate gases unfriendly to health. The places where such substances most abound are streets, gutters, alleys, courts, cellars, sinks, sewers, docks, wharves, privies, and certain manufacturing establishments concerned in articles of a putrefiable

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nature. Over these places Boards of Health should have full jurisdiction, that they may be able to enforce in them the requisite cleanliness. Bodies established for sanitory purposes may render further services, by providing suitable accommodations and professional aid for the indigent sick, and by becoming centres to receive, and sources to issue correct information respecting the complaint. Beyond this their usefulness is doubtful. That they often do mischief, by officiously interfering in what they do not understand, and will not be advised in, is proved by abundant experience to be true. By acting on the presumption that Cholera, Yellow fever, and Plague are contagious diseases, they always do mischief and nothing else; because good can never result from measures founded on false principles.

But individuals can do much more than Boards of Health, to prevent or mitigate Cholera, each in his own person. And the means are simple and accessible to every one. They may be expressed in two words, CLEANLINESS and TEMPERANCE. My allusion here is to *domestic* and *personal* cleanliness.

Passages, halls, parlours, and kitchens, but more especially nurseries and bedchambers should be scoured, washed and ventilated often enough to keep them perfectly clean; and beds, bedding, and personal apparel should be frequently aired and purified. It need scarcely be added, that, under the latter direction is included washing, when necessary. Another useful measure in domestic clenliness consists in removing from gardens, and other grounds adjoining dwelling houses, all substances liable to putrefaction. Putrid turnnips, cabbage, potatoes and onions have often proved the source of fatal disease. Entire families have been nearly annihilated by them. All animal offals should be also removed, with every thing else that tends to diminish the purity of the atmosphere. Impure air of whatever description weakens the constitution, and endangers health.

Personal cleanliness cannot be sufficiently maintained, without bathing every other day, at farthest; and, for general use, the warm or tepid bath is preferable to one of a lower

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temperature. Cleanliness is more effectually maintained by it; and it is more salutary, in common, in its impression on the skin, and, through that, on the system. If judiciously employed, it disagrees with no one; whereas the cold bath is often injurious, especially to those whose constitutions are feeble. Personal apparel, particularly under garments should be changed as often as the bath is used. To neglect this is to forego, in some measure, the benefit of bathing. A soiled garment in contact with the skin is unfavourable to health no less than comfort.

Another element of personal purity more worthy of attention than it is usually considered, is to preserve cleanliness in the mouth. The teeth and gums should be brushed and washed, not only every morning, but after every meal. To hollow teeth in particular the strictest attention is requisite. If alimentary matter be suffered to remain in them, it must necessarily putrefy, and produce an offensive and deleterious gas. And if such a gas be injurious when breathed, it cannot be less so when swallowed. It tends to debilitate the stomach, and, through that organ, the whole system. Dyspepsia is often produced, and always aggravated, by an impure condition of the mouth. I have seen many cases of that complaint, which could not be cured until several carious teeth were extracted, and then the disease disappeared without further trouble.

Under the head of personal purity may be correctly enough included the preservation of a proper condition of the alimentary canal. Constipation, and a superabundant collection of fæcal matter in the bowels should be prevented. But it is much better to attain this end, if practicable, by diet and regimen, than by *medicinal substances*. As *preventives* of disease, such articles rarely do good. On the contrary, unless when administered with sound judgment and skill, they are always pernicious. They act as irritants, weaken the system, and render it more liable to disease. They are designed to *remove* sickness not to *prevent* it. No one in perfect health can take a purgative, or even a *laxative*,

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without feeling the worse for it—a proof that it does not tend to promote or confirm health. If artificial means must be employed to move the bowels, injections are preferable to medicines swallowed.

TEMPERANCE, as already mentioned, in the body of this paper, is a word of very extensive import. It means excess of every description—in diet and drink—the indulgence of the passions—the exercise of the intellect—corporeal motion and rest—sleeping and waking—exposure to weather in any respect inclement—or whatever else may tend to exhaust and enfeeble the system.

Of all the passions FEAR is the worst; because it is the most debilitating. It kills its thousands. Fatal experience shows, that, in this assertion, there is no extravagance. The expressions, "unprecedented mortality," "appalling malignity," "frightful ravages," "terrible scourge," "irresistible malady," and all similar forms of speech, applied to a prevailing disease, operate on the fearful with the force of thunderbolts. To bandy them, as the Editors of News-papers are now doing, is a species of homicide. A calm but correct account of the disease is all that should be given. Every thing beyond this is rank intemperance, and deeply blamable, because it is distressing and destructive in its effects. An intemperate alarmist, therefore, during the prevalence of a formidable epidemic, is one of the greatest enemies of society. He does more mischief than the robber or the incendiary. To spread terror through the minds of the people, on such an occasion, is like poisoning the air they breathe, or the water they drink. Other passions, if suffered to rise to excess, are also pernicious. A paroxysm of rage has often excited an epidemic into action, whose seeds had been hitherto dormant in the system, and might have so continued, and passed off, without doing mischief, had no exciting cause been applied. The same pernicious effect is often produced, by violent and exhausting exercise, long exposure to the rays of an intense sun, or to a current of cold air, a shower of rain, the dampness of night, or the chilling action of humidity in any other form. Too

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much sleep as well as too little creates weakness, and increases the liability to disease. The *minimum* of sleep, during each natural day, should be *five hours* and the *maximum*, *eight*. Few persons can retain their health, and vigour with less than the former, and more than the latter must injure any one. The amount moreover should be taken with regularity, between ten at night, and six in the morning. Be the cause what it may, the sleep that is enjoyed between these hours is the most refreshing and salutary. During the prevalence of cholera, or any other pestilential epidemic, the bed chambers should be the largest and best ventilated rooms in the house; and, if it can be avoided, not more than three or four persons, at farthest, should sleep in the same room. Two is a still better number. And, were the chambers in the second or third story of the buildings, the chance of escape from the disease by those occupying them would be the greater. Of such importance is an unadulterated atmosphere! The impure air which the indigent breathe, in low crowded rooms, is as pernicious to them, as the scanty and unwholesome food which they eat. Both enfeeble their constitutions, and whatever does that invites disease.

Excessive study is nearly as exhausting and injurious, as the intemperate indulgence of any of the passions, except fear, *anger* and *love*. Let all who would escape cholera, carefully avoid these debilitating influences. The condition of mind best calculated to act as a preventive of the complaint, is made up of calmness and cheerful confidence, resolution and hope. Sustained by these, many walk securely in the midst of pestilence; while the timid, agitated, and irresolute become its victims. It was temperance, calmness, and courage that protected Socrates from the plague of Athens. To occupy the mind in some sort of business, which neither exposes nor fatigues, is highly useful. Alarm therefore does much mischief by destroying or suspending business.

During the prevalence of cholera those kinds and quantities of diet and drink, which have been found by experience to be most conducive to entire health and strength, should be

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steadily persisted in. Under such circumstances, any great and sudden change, in the mode of living, is injurious, because it unsettles the constitutional habits, and gives an opening to disease. Those who use animal food ought not to abandon it; neither should vegetable eaters make any alteration; provided the diet employed has been found to sustain health and vigour at their full height. But those who have been in the habit of over-loading their stomachs should never fail to reduce the quantity of their food. The safest plan is to eat moderately, at *regular hours*, of that which is plain but nourishing and easily digested. I say at "*regular hours*;" because any irregularity in the time of meals (I mean the *customary* time) especially long fasting, is necessarily hazardous. It is equally so, to go out in the morning, with an empty stomach.

Of drinking the same is true, as of eating. While the cholera is in actual prevalence, no material change should be made in it. Let the moderate wine-drinker continue his wine, and the grog-drinker his grog. But let both, as they value their lives, avoid intoxication, and every approach to it. Whatever may be the course which sots pursue, their condition is desperate. Having made themselves fit food for the disease, it is scarcely possible that they can escape it. Although to reject strong drink entirely would probably hasten their destruction and render it more certain, their only chance of safety consists in abandoning their beastliness. The debility which succeeds intoxication invites disease, and opens a passage for it as certainly, as a breach in the wall of a besieged town permits the besieging troops to enter.

There are certain kinds of food and drink, which should be rejected altogether, during the prevalence of cholera. Nothing ought to be eaten, that falls justly under the denomination of *trash*. And the articles of that description, which enter into the daily fare of the people of this country are abundant. To this class of *poisons* (for such they are to all persons predisposed to cholera) belong unripe and subacid fruit, and all crude vegetable substances. By way of illustration

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I may specify unripe apples, pears, peaches, and plums; cherries, currants and pine-apples, whether ripe or unripe; radishes, green corn whether boiled or roasted, cucumbers, and all sorts of pickles and salads. While the epidemic exists, it is safest to decline the use of summer fruit altogether, unless it be *cooked*. In its native condition, however ripe it may be, it is irritating to bowels predisposed to disease. So is every thing difficult of digestion, or liable to fermentation. Pickled oysters are often the exciting cause of cholera. So are fresh pork and cabbage. Of half or quarter-grown potatoes the same is true. They are as bad as green apples. Nor can any degree or form of cooking subdue their deleterious qualities. Yet skilful cooking does so much to render food innocent and digestible, that, during the epidemic, every thing eaten should be cooked thoroughly.

The times and circumstances of meals are much more important than they are generally supposed to be. Suppers at a late hour are unsafe. No food, except of the mildest and most digestible kind, should be taken when the system is exhausted by fatigue, or any other cause. The reason of this is plain. Stimulation has been already excessive, and the stomach, in common with other organs, is too much enfeebled for the work of digestion. To stimulate the system further, therefore, and to swallow food difficult to be digested, must augment exhaustion to the point of danger—perhaps of disease.

When a practised traveller, in warm weather, arrives at an inn, after a severe ride, his horse heated and fatigued by the journey, does he order for him *immediately* a plentiful meal of oats or corn, to *refresh* and *reinvigorate* him? No certainly. He knows that such a step might be fatal. The animal is stript of his travelling garniture, and allowed to cool, and lie down, if he pleases, to recover from his fatigue, before he is fed. He then eats with impunity and benefit.

To man the same law of alimentation is applicable. If he eats plenteously, when in a state of exhaustion (no matter from what cause) he suffers from his indiscretion. But his

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meal, instead of injuring, profits him, when it is taken after his fatigue has been removed by rest. Yet nothing is more common, than the attempt to remedy human exhaustion, by stimulating food or drink. Nor can any practice be more unreasonable or injurious. To the exhausted traveller, cool water, used in moderation, is more invigorating, as well as more grateful, than the choicest wine, and water-gruel sweetened with sugar or seasoned with salt, much more refreshing and salutary, than any sort of solid food, however savoury or nutricious. When the whole system is weakened by fatigue or any other mode of exhaustion, the stomach suffers, as a part of it; and, like other organs, must regain strength from rest, not from further stimulation, before it is competent to its customary labours. Suppose the optic nerve to be fatigued, by the long continued action on it of blue, green, or orange rays; which would be the preferable mode of renovating its strength, to exclude light from it altogether, and give it perfect rest, or to stimulate it in a higher degree, by concentrating red rays on it, through a convex lens? None but a novice or a madman would adopt the latter practice. And yet it is just as reasonable as that of attempting to stimulate the exhausted stomach or general system into strength, by strong drink, or rich and savoury food. The two practices are analogous to each other.

Of all drinks, during cholera, water is the best. Fresh milk diluted with water is also good. But butter-milk, or sour milk in any form, ought to be avoided. So ought acid drinks of every description, as they irritate the too sensitive alimentary canal, and excite it to diseased action. Mead and new beer and cider are peculiarly deleterious. I know nothing positive respecting the effects of the artificial mineral waters of the shops. But I am much more inclined to dissuade from their use, than to recommend it. When the susceptibility of the stomach and bowels is morbidly increased, whatever is irritating must necessarily do harm. The milder the drink, therefore, the better. My allusion is to common drink. It has been already stated, that it is ha-

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zardous for those long accustomed to the moderate use of wine or even ardent spirits, to abandon them suddenly, during the prevalence of an epidemic disease.

Proper clothing forms an important article, in the general means of preventing cholera. It should be such as may best keep the body in a comfortable temperature—rather however above the point of pleasant feeling, than below it. In a special manner, it should protect the system against the humidity and the vicissitudes of the atmosphere. For this purpose, flannel next the skin is most suitable. Cotton flannel, which is preferred by many, is also admissible, especially in hot weather. The protecting influence of clothing consists in maintaining the healthy action of the skin. No portion of it therefore should be so tight as to prevent, or in any degree diminish cutaneous circulation, by its pressure. On this ground tight shoes and boots, but more especially tight corsetts do much mischief. Many a young lady has exchanged health, and perhaps life, for a slender waist; and, what is still more ridiculous, many a young gentleman for a neat-looking foot.

I have said that bed-chambers should be large and airy. But, during an epidemic disease, it is hazardous to keep the window sashes of sleeping rooms up through the night. A current of damp or cool air, which ought always to be avoided, may thus be directed to the beds, and excite the complaint, which most frequently makes its attack at night. Let no one therefore fall asleep, or remain long in a sitting or a recumbent posture, in the open air, more especially the night air, during the prevalence of an epidemical complaint. The bed-clothes should be sufficient to prevent chilliness. Cool or damp air is trebly deleterious, when it acts on the body during sleep.

Further directions for the preservation of health might be given. But it is believed that a careful observance of the foregoing, if it does not entirely prevent cholera, will greatly circumscribe its prevalence, diminish its power, and, in an equal degree, disarm it of its terrors.

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Let it not be said that these rules are too rigid. They are the dictates of reason and common sense. And those persons who acknowledge that they have too little self *control*, to conform to them, pay themselves a sorry compliment. They acknowledge themselves more of animals, than of human beings.

Am I asked, whether any odorous substances, usually denominated "antiseptics," such as vinegar, camphor, volatile salts, or terebinthinates, can serve as protectives against cholera, or other epidemics? I answer, no. The employment of such articles is open quackery—silly in those who resort to it, and disgraceful to physicians who advise or countenance it. I have seen the experiment made in *thousands* of instances, of yellow and typhus fevers, but not the slightest benefit derived from it in *one* of them.

Much has been said of the purifying and protective influence of chlorine gas. Nor am I inclined either to commence, or provoke a controversy on the subject. In confined situations, where malaria prevails, and ventilation is defective, the article may be useful. But I apprehend it is in such situations alone, that it can be employed with any reasonable prospect of advantage. To attempt to change by it the epidemic constitution of the atmosphere of a town or city, would be an act of quixotism, well calculated to bring the article into disrepute. It would resemble the well meant effort of the sailor's wife, to save her husband from a shark that was about to swallow him, by throwing a pin into the monster's throat; or that of the lady, at sea, who held out her fan, to guard the ship from the sweep of a tempest. Nor does it seem to me that much benefit is likely to result from an attempt to free, by any practicable employment of chlorine, the entire atmosphere of a city, from *common malaria*. The end aimed at is by far too great for the power of the means used for its attainment. Projects so visionary do more harm than good. Besides; the safety of breathing a chlorine atmosphere, for any length of time, is yet to be proved. The atmosphere, as now constituted, is in harmony

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with the human system, and is therefore just what it ought to be. Hence, if any agent as powerful as chlorine be added to it, there is reason to apprehend that it will be rendered unfriendly to animal life. Pure atmospherical air, not that which is adulterated, is alone favourable to health. Where malaria is therefore constantly generating, if chlorine be as constantly thrown into the atmosphere, to destroy it, the result will be but the exchange of one evil for another. Hence, as in all other cases, cleanliness is the only certain source of safety. A leading means of giving the system health and vigour, and enabling it to resist the influence of deleterious causes, is the breathing of pure *atmospherical* air. Such air is to the lungs, what simple food and pure water are to the stomach—their most natural and salutary stimulus, and safest and surest strengthener.

Once more. It is inculcated on families, where cholera prevails, to procure certain specified articles of medicine, and keep them in readiness for immediate use. These are to be given to patients, on the appearance of the first symptoms of the disease, to hold it at bay, until regular professional aid can be obtained.

In the propiety of such directions I cannot concur. Few projects can be more unavailing, than that of attempting to teach the public to use medicinal substances advantageously, even in *common complaints*. In malignant ones, the effort is hopeless. In stronger terms, it cannot fail to do mischief. It ranks with the placing of fire-arms, and other warlike implements in the hands of children, for the expulsion of an enemy. By an unskilful use of their means, the raw and tiny soldiers will destroy themselves. In a very violent complaint, feeble remedies are necessarily useless; and, unless administered with judgement, powerful ones are injurious. If sound training and mature experience are necessary in any thing, it is in the practice of medicine. Without them, all efforts either to arrest or remove disease, are empirical, and threaten mischief. When the approach of cholera or any other malignant complaint is felt, therefore, let the best

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professional aid be procured without delay; but let no powerful remedies be administered by the unskilful. The violation of this rule has destroyed *millions;* and, if it has ever saved *one*, it has been by accident. Let those who value life therefore strictly avoid it.

Finally, and to speak of the subject on a general scale. There are few customs so injurious to our race, as that of *mere readers* of "Family Physicians," "Medical Companions," "Nurses' Guides," "Every one his own Doctor," and other popular works of the kind, prescribing medicines in cases of severe and dangerous disease. The prescribers have no knowledge of the fitness of their drugs to the various conditions of the systems of the sick, nor of the immediate effects which ought to be produced by them. In this state of ignorance, the peril of their patients resembles that of an individual, in a dark night, encompassed by spring-guns, with but a single opening in the circle to admit of his escape. If he move in any direction but the right one, certain destruction awaits him. But the circle contains three hundred and sixty degrees, or points of passage, either of which he may strike, in his attempt to cross it. But of these, *three hundred and fifty nine are armed with death.* His chance of escape therefore is but as *one* to that number. In other words, *his case is hopeless.* Nor is the case of a patient labouring under a malignant disease less so, when its treatment is directed by an ignoramus in medicine. In truth even Steam Doctors and nostrum-mongers, though much more detestable, are scarcely more dangerous to the sick, than our sage and conceited tribe of "knowing men," and "knowing women." Yet it is not long since a distinguished teacher of medicine proclaimed his belief, that, *provided his principles were adopted,* "common nurses" might be taught the art of "curing plague and yellow fever." Such is the encouragement given to empiricism, even by those whose frown should be most fatal to it!

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ART. II.—*An Essay on the Medical Topography of East Tennessee.* By J. G. M. RAMSEY, A. M. M. D. Read by appointment of the President, with the concurrence of the Medical Society of Tennessee, at its first anniversary in Nashville, May 2nd, 1831.

"——— *nullius addictus jurare in verba.*"

THE influence of climate and of physical causes in general on the human system, suggests the propriety of introducing the following notice of the medical Topography of East Tennessee, with a brief reference to the face of the country, its geology and atmospherical vicissitudes.

This country lies between the parallels of thirty five and thirty six and a half degrees of North latitude. It is almost entirely surrounded by mountains, and those forming its eastern and southern boundaries are the most "stupendous heights" in the United States, presenting, with the exception of the avalanches and the glaciers, all the terrible features of the Alps and Pyrennees in Europe. It is moreover intersected in various directions by ridges of considerable elevation, and is throughout its whole extent hilly and undulatory. No country presents greater diversity of appearance. The vastness of the Appalachian chain, its precipices and forests, its cascades and torrents are beautifully contrasted with the fertile valley, the cultivated field and the pleasant village. Awed by the magnificence of the spectacle and its admirable contrasts, we look upon them with rapture. The mountain scenery is particularly grand and interesting, and from similar influences the conceptions of the poet must have received their inspiration.

"Pleasant are all its scenes, but most to me
The solitude of vast extent, untouched
By hand of art, where nature sowed herself,
And reap'd her crops;—whose garments were the clouds;
Whose minstrels, brooks; whose lamps, the moon and stars;
Whose organ-choir, the voice of many waters;

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Whose banquets, morning dews; whose heroes, storms;
Whose warriors, mighty winds;
Whose orators, the thunder-bolts of God;
Whose palaces, the everlasting hills;
Whose ceiling heaven's unfathomable blue!"

Geology.—Geologists as is well known, have divided the rocks of our globe into primitive, transition, secondary and alluvial. East Tennessee is set down by Cleavland and others as a secondary, though it is unquestionably a transition district. It is also true that it is not generally transition of the *oldest* kind, or that which approaches primitive. In some cases it would seem that the secondary formation was blended with it. Such for instance is the case with the heights above Mechlenburg, near the confluence of the Holston and Frenchbroad. Here the rock is a coarse kind of lime-stone abounding with shells—the strata being nearly horizontal. But the country abounds with lime-stone, infiltrated with nodules of horn-stone, and though this has been mentioned as a secondary rock, little examination is necessary to satisfy the geologist that in East Tennessee it is to be classed with the transition formations. Graywacke and slate are also abundant, with an occasional vein of fetid lime-stone. The strata in all the rocks, have more or less inclination, but the slate formations in the vicinity of Knoxville are nearly perpendicular. As we approach the mountains either to the East or South, the country gradually assumes the appearance of a primitive district. In most parts of the country the soil is underlaid with the carbonate of lime, existing at every depth, and approaching in many places the surface so closely, as to render it unfit for cultivation. Imbedded in it, or impressed on its surface, are found marine exuviæ of several varieties. The water-courses of East Tennessee are pure and transparent, and their currents rapid. There are no sluggish streams, and no swamps or marshes of any extent. The water is generally impregnated with lime, but springs of free-stone water are not uncommon.

Climate and Seasons.—While corresponding parallels

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in the other Hemisphere* are remarkable for warmth and equality of temperature, East Tennessee is subject not only to sudden, but to extreme vicissitudes of weather. The seasons are exceedingly variable. Cold and disagreeable storms of rain are frequently succeeded by relaxing and enervating warmth, and the genial influence of a delightful May-day is sometimes alternated in a few hours with the gloom and chilliness of December. In summer the mercury has risen to 96° Fah., but the heat is often moderated by the mountain breezes, which render the air salubrious and the temperature delightful. Thunder storms are not uncommon, and are often attended with hail. The winter is severe, and often "lingers in the lap of spring." During the late intense cold, the Mercury fell to 3° above zero, and some of the rivers were frozen over. If the seasons are milder than formerly, they have become evidently less salubrious. The summer being longer, more time may be given for the production of the putrid exhalations, and probably, in the language of another, for its greater concentration, and activity in producing disease.

It is chiefly to the humidity of our climate however, I would ascribe whatever of disease is the result of atmospheric influence. From the extreme height of the surrounding mountains, the prevalent winds pass entirely above the valleys, and the heavier portions of the air, are thus precipitated below, while the more elastic and vital part, is wafted from us. The sudden transitions of temperature, contribute much to the production of disease; but this humid constitution of the atmosphere, is particularly hurtful, at the crisis of diseases, when the recuperative action of nature is needed in all its vigour to re-establish health.

Indiginous Medicinal Products.—Hitherto the vegetable and mineral resources of the country, have received no scientific investigation. The richness of the field ought long since to have invited the researches of the naturalist, but it

* Malaga, Tunis, Ancient Carthage, Candia, Cyprus and Aleppo—the country of "eternal spring."

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remains yet wholly unoccupied. Nature has been lavish of her mineral treasures, and displayed great fecundity of vegetable varieties. Of these I shall enumerate only the most useful and valuable. These are Polygala senega, Aristolochia serpentaria, Sanguinaria canadensis, Prunus Virginiana, Spigelia Marilandica, Frazera verticillata, Cornus florida, Datura stramonium, Ulmus Americana, Lobelia inflata, Gentiana marrubium vulgare, Spiræa trifoliata, Chenopodium anthelminticum, Quercus, Mentha pulegium, M. piperita, Eupatorium perfoliatum, Capsicum annuum, Asclepias decumbens, Liriodendron tulipifera, Melia azederach, Smilax sarsaparilla, &c. The mineralogy of this interesting section of country is comparatively little known. It is believed to be no where surpassed, either in the richness or variety of its mineral productions. Of these there have been found Arsenic, Tin, Lead, Iron, Silver and Gold. To these might be added some notice of

Medicinal Springs.—It has already been mentioned, that water impregnated with the carbonate of lime, abounds in almost every section of the country. It is reputed to possess some curative efficacy in chachectic diseases, and those which follow ill cured, or protracted intermittents, or a residence in southern climates. My own observation has not confirmed a common opinion, that the use of it gives rise to calculus.—Chalybeate springs, possessing much variety of combination, are found in many of the mountain counties. Those in Sevier, Blount, Carter and Grainger, have been successfully used in diseases of the digestive functions, and those arising from debility, or sedentary life, as well as the Protean varieties of nervous disease in general. But, moral not less than physical causes, modify the action of disease upon the human constitution, and these general remarks shall be closed by a brief notice of the

Character and Habits of the People.—The great mass of the population is engaged in the pleasant, innocent and healthful pursuits of agriculture. A small portion only of the inhabitants have engaged in commerce or manufactures. In-

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dolence, luxury and refinement have, in a few instances only, produced their accompanying diseases. Active pursuits, athletic amusements, and in general a healthful climate, give to the people robust constitutions and vigorous health. Plain, artless and unassuming, they exhibit the sterner virtues in their most imposing forms. The first emigrants consisted of hardy and intrepid pioneers, who in the first settlement of the country, exhibited feats of romantic heroism and chivalrous adventure, surpassed only in the tales of fiction; and their descendants, obedient to the injunction of Wordsworth,

> "Let no mean hope your souls enslave,
> Be independent, generous, brave,
> Your Fathers such examples gave
> And such revere!"

have emulated the example set by their ancestors, in their own wilderness, and on the heights of King's mountain, and animated by the same lofty spirit of freedom and independence, and glowing with the holiest impulses of patriotism, they have displayed at Tahopeka and Emuckfaw, in the fastnesses of Florida, and on the plains of the Mississippi, the same fearless disregard of danger, the same inextinguishable love of freedom,—the same undying thirst for glory!

After this hasty and imperfect outline of the physical and moral face of the country, I proceed at once to the consideration of the diseases of East Tennessee. Of the early history of these, the notice must necessarily be brief, as the materials are not only imperfect, but far from being ample. Indeed the oldest inhabitants of the country refer to the period of its first settlement as one of entire and uninterrupted health. This immunity from disease, may be ascribed in part to the existing state of society. Enterprising and adventurous, the pioneers of the country formed its "golden age," when luxury had not enervated, nor vice corrupted, nor wealth seduced from the innocency and simplicity of nature. Real wants prompted to manly and vigorous effort, and surrounding difficulties only inspired a contempt for danger, and operated as constant incentives to perseverance and fortitude. The diseases of such a population were few

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and manageable, and the vis medicatrix naturæ generally effected their removal. But to whatever cause it may be owing, it is notorious that with the advancement of the country, its diseases have become not only more frequent, but more malignant, requiring a corresponding vigor in their treatment. I will have been anticipated in the general remark that they are essentially sthenic and inflammatory. Robust and vigorous, the subjects of them often present the phlogistic diathesis, with plethora, and rigidity of fibre.

Of particular diseases.—These shall be considered without regard to any nosological arrangement, and admonished by the limits to which I am necessarily confined, I can extend these remarks barely to an *enumeration* of those which are most prevalent, with little reference to their pathology or therapeutics.

Rheumatismus.—This is perhaps the most common form of pyrexial disease—affecting often persons of every age, sex and condition in life. It is usually ascribed to our humid climate, and the sudden changes of temperature. It occurs most frequently in winter and spring. It sometimes terminates in arthrodynia ischias or lumbago. Rarely, an incurable anchylosis follows its chronic form.

Pleuritis.—Like the preceding, pleurisy is a disease of frequent occurrence. None of the phlegmasiœ in our climate is attended with more serious consequences. Affecting as it sometimes does the lining membrane of the lungs in its whole extent, it not unfrequently communicates inflammation to the substance of that organ, and destroys the patient by suffocation, or the formation of an abcess. And the active depletion, to arrest the acute inflammation of the respiratory structure, together with the previous injury it has sustained, often lays the foundation of pulmonary consumption.

Phthisis.—It was mentioned when the climate of East Tennessee was under consideration, that while we inhabit the same parallels with Tunis, Ancient Carthage and the southern extremity of the Grecian Archipelago, we experience in fact the climate of a much higher latitude. This

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remark is confirmed by a reference to our diseases, and especially to the one of which we are now treating. It has been computed that out of a population of eleven millions, fifty five thousand of the annual deaths in Great Britain, occur from consumption. I have not the statistics to carry out the computation in reference to this country. But from the rigor of our winters, and the instability of our climate, consumption with us is a disease of alarming and increasing frequency. And here, as elsewhere, it continues to be the reproach of our art. Several of its species are presented; as Phthisis Scrophulosa, Phthisis Hæmoptica, Phthisis Exanthematica, and sometimes though rarely, Phthisis Chloroticæ. Of those enumerated, the two first are most common, though the species appearing as the sequelæ of exanthematous diseases (especially measles) is often met with. I have had frequent opportunities to observe the close connection between consumption and scrofula. This variety, if not the most common, is certainly the least remediable. Indeed, sooner or later, it is invariably fatal. That accompanied by, and arising from, hemoptœsis is sometimes removed by the employment of depletory remedies, but the hæmorrhagic predisposition is more fully eradicated by a change of climate. A residence in the south, where the temperature is more uniform, and the winters more mild, by revolutionising the system, sometimes effects a cure.

Pneumonia.—Inflammation of the lungs is less frequently met with than either of the preceding diseases. It is, however, not uncommon, and is sometimes obstinate. When I come to treat of our epidemics, the variety of this disease called peripneumonia typhoides shall receive a distinct consideration.

Cynanche.—This is a disease of frequent occurrence, and some of its varieties, have prevailed epidemically. Other acute inflammations are seen, but I shall stop to notice only a species of gastritis, which nosologists have not hitherto classified. *Morbus vaccinæ lactis*, has been applied by a professional gentleman of high character, to a disease called,

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in vulgar language, "milk-sickness." As its name imports, it is supposed to be occasioned by the milk of cattle, possessing some poisonous or unhealthy properties. The cause of this vitiated secretion, has not been satisfactorily ascertained. While some ascribe it to a poisonous vegetable, others believe that a deleterious exhalation, from some mineral substance, perhaps lead or arsenic, imparts its poisonous qualities to the atmosphere, and that these descending in the form of dews, are left upon the grass, and thus affect the cattle. I have not seen a case of the disease, and have not been able to procure from others, a minute account of its symptoms or treatment.

Scrofula has been said to be endemic in moist and cold valleys. I have not found it more common in East Tennessee than elsewhere. The hereditary predisposition is, indeed, said by some to be eradicated by a residence in our limestone counties.

Epilepsia.—Wengel found the cerebellum invariably diseased in epilepsy. Many cases which I have seen, were evidently attended by a peculiarity in the cranial conformation, which by its connexion with the cerebral structure, may induce, or aggravate the disease; but the affection is often associated with, and dependent upon, a diseased state of the viscera of the abdomen, and pelvis, and requires a corresponding modification of the treatment.

Cretinism.—Although East Tennessee is the Switzerland of America, I have not known a case of cretinism to present.

Hydrops.—Of the varieties of this disease ascites, anasarca, and hydrocephalus are most common. Hydrothorax is rarely seen. The hydropic diathesis is seldom present as the primary affection. Dropsy often follows affections of the liver, and other derangements of the chylopoetic viscera.

Dysenteria.—This disease has prevailed frequently, and in some neighborhoods has been fatal, but ordinarily it yields to the common remedies.

Febris.—I have already observed, that during the first

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settlement of the country, there was generally a remarkable exemption of the inhabitants from disease. This is especially true in relation to *fevers*, properly so called. Intermittents during the period of autumnal insalubrity form an exception. These prevailed extensively; but the apyrexia being a state of comparative comfort, they received little attention, and remedial agents were rarely employed. But with the opening and improvement of the country, sources of disease have been multiplied, and with them fever has prevailed to considerable extent. It is not confined to the valleys and banks of large rivers; but the more elevated countries, are annually visited with its severest forms. The fact, that fever prevails in districts where vegetable decomposition is inconsiderable, if not harmless, seems to invalidate the correctness of the theory which ascribes idiopathic fever to a miasmatic origin exclusively. I would not be understood to deny, *in toto*, that marsh miasm is the cause of fever; but since they prevail with us, in a degree no way proportionate to the extent, or concentration of the malaria, I must avow my scepticism of the adequacy of the cause, to the production of such extensive and powerful results. Intermittents are generally mild and manageable. Remittent fever is often violent, and obstinate. Attacking most frequently the robust and plethoric, it is highly inflammatory, attended with much pain in the head, back and limbs, and great vascular excitement. Full bleeding is always indicated, and is followed by the most favourable results; sometimes cutting short the disease. More frequently, however, it is necessary to pursue the depletory system further, by the exhibition of an active antibilious cathartic; or in those cases where head-ache continues after the loss of blood, or chilliness is present, or there is no relaxation of the surface, an emetic is first given, and an aperient afterwards. The drastic cathartics are less used than formerly. Antimonial febrifuges have measurably gone out of use;* our fevers presenting too much gastric irritability to render them admissi-

* In fevers implicated with affections of the thoracic viscera antimonial preparations are employed with decided advantage.

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ble. The prejudice against the use of opium in fever, is subsiding. In those cases where it is attended by irritation (and this often aggravates and prolongs it) opium is prescribed with great advantage; allaying irritation, removing pain, and promoting perspiration and sleep.*

The preceding course, modified however, as it must be by idiosyncracy, habits, temperament and age, generally conducts the patient safely through the disease. *During convalescence* cinchona is given as a tonic or stomachic. I have not found it to possess other properties. Reputed to possess a *febrifuge* efficacy, its earlier exhibition has in too many instances produced disorganization and death. The plan of curing fever, by frequently repeated doses of calomel, is not in general much adopted. It has, however, its apologists. Where I have seen it resorted to, I have had much reason to condemn the practice. The use of the cold affusion, under the well known restrictions, is a powerful adjuvant, under any plan of treatment, and it were to be wished that it could be more generally adopted. However manageable, our fevers have ordinarily been, instances are not wanting of great malignancy and fatality. A fever of this description occurred early in the year 1824, and destroyed many, under every variety of treatment. But it was reserved for the year 1830, to present the most fatal and alarming form of fever, which has yet prevailed in Tennessee. After a spring, in which no extraordinary vicissitudes of weather had existed, an unexampled drought occurred. From the 17th of June, no general rain was experienced. The water courses becoming very low, the banks, bars, and points of islands, presented a larger surface to the action of solar heat. Many aquatic productions, animal as well as vegetable, were left in a state of putrefaction, to contaminate the atmosphere with deleterious emanations. Fever followed, and prevailed several weeks with unprecedented fatality. On Holston, Frenchbroad, and Tennessee rivers, its worst forms were presented. I saw a case of it so

* I am in the habit of prescribing opium even in some of the Phlegmasiæ Its use is seldom improper when the tongue is moist.

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malignant, as to exhibit the symptoms of yellow fever, except black vomit. Instances of the combination of vegetable and animal decomposition, are not often seen with us, but the isolated case which I have mentioned, of its great activity, might be adduced to strengthen the validity of the American doctrine, which ascribes yellow fever to a domestic origin.

Epidemics.—The epidemics of a country form an interesting feature in its medical history. Without investigating their cause, or the law by which they are afterwards propagated, I proceed at once to the consideration of those which are most common.

Influenza.—The older physicians mention the influenza that prevailed in 1807, and 1808, as a disease of great malignancy. It affected principally the aged, the weak and phthisical.

Rubeola.—Measles have been often epidemic, but are usually mild. Their sequelæ are productive of more danger than the primary affection—Pertussis is commonly mild and never fatal, except with infants. Cynanche maligna has often prevailed epidemically. The ingenuity and best directed efforts of the most skilful, have often failed to arrest its cruel ravages.

Peripneumonia Typhoides.—Under different names this disease has visited various sections of the United States. In Tennessee it has frequently prevailed, especially when a wet and thawing season succeeds intense cold. Of atmospheric origin, it has sometimes embraced almost the entire population. In no disease of our climate is the practitioner thrown more upon his own resources. That discrimination and judgment, which are at once his buckler and his shield—his treasure and his glory, are not only essential to the steadiness of his purposes, but form the guaranty of his success. Differing in our pathological views of the nature of this epidemic, we have pursued a different therapeutics in its treatment. Assigning to the disease a sthenic character, there are amongst us the advocates of direct depletion. Others mista-

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king the oppressed state for debility, have resorted to active stimuli, and have carefully husbanded the resources of nature. "In medio tuissimus ibis." Cases do occur, it is admitted, where preternatural accumulations of blood indicate the necessity of decisive depletion. And this indication is attained in the very *commencement* of the attack by venesection, with the aid of other depletory agents. But that variety of the disease which is of most frequent occurrence, is marked by sudden and extreme prostration of strength, a weak and depressed pulse, or absolute asphyxia, great oppression about the heart, a livid complexion, and coldness of the extremities. Here a different plan is adopted.* As arterial excitement is much less dangerous and more easily removed, than venous congestion, the indication during this stage of oppression is to second the admirable economy of nature by accelerating that *reaction*, which is known to have the salutary tendency of substituting the acute, for the subacute form of inflammation. This is effected by the cordial and diaphoretic plan of treatment. The patient is immersed in the hot-bath; a draught combining the general properties of a gentle stimulant, and an active diaphoretic is exhibited, and friction is applied to the surface. Diaphoresis follows, or if nausea have prevailed, full vomiting. The oppressed state is changed for that of open excitement. A sensible reaction throughout the whole system takes place, and issues in the full establishment of the phlogistic diathesis. The circulation becoming equalised, the skin and extremities hot, the pulse full, frequent and bounding, a free use of the lancet is now imperiously demanded; especially if acute pain in the side, hard cough and bloody expectoration occur. The bleeding is sometimes repeated. Drinks that combine diaphoretic with expectorant properties, are now to be exhibited, and generally effect a cure.

I have thus given a brief, and very imperfect sketch of the Medical Topography and Diseases of East Tennessee. In

* The writer is indebted to some one, perhaps Armstrong, for some of the ideas which follow.

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the analysis of our diseases I have purposely avoided much pathological or therapeutical speculation. Adopting the maxim of Hoffman "Medica ars est tota in observationbus," I have given the result of my own observation and experience, though conflicting, perhaps, with fashionable opinion or antiquated authority.

Theory may amuse in the study, or furnish entertainment in the Lecture room; but clinical examination often demonstrates its fallacy, and exposes the illegitimacy of its inferences. Bound to no system, wearing the livery of no champion, the faithful observer repudiates the maxim *obsta principiis.* The charge of innovation carries no reproach with it, when the object of innovation is the removal of disease, the prolongation of life, or the increase of human happiness.

ART. III.—*An Account of some of the Principal Mineral Springs of Kentucky.* By *the* EDITOR.

HAVING in the course of the last summer visited several of the Mineral Springs of Kentucky, the writer proposes in the following paper to give some account of their chemical and medicinal properties. In this he hopes he shall perform a task not unacceptable to his professional readers, and of some interest for the many invalids who annually visit them for health. Physicians, it will be agreed, cannot recommend these waters with any confidence to their patients without a knowledge of their composition, while the valetudinarian can scarcely hope to derive benefit from their indiscriminate use, differing as they do so widely in their qualities. The subject of an inflammatory affection would be apt to experience an aggravation of his symptoms, rather

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than an amendment, under the use of a *chalybeate* water, nor would one whose system was already exhausted be likely to be more improved by one of an opposite character. In no other case is it of more importance that the nature of our remedies should be clearly defined, and if the quackery which prevails in the employment of these waters has not done much mischief, it is because their pernicious influence has been counteracted by the pure air, and healthful exercise enjoyed by the sick in visiting them.

In England, Germany, and France, where the attention of the public and the profession has long been directed to these springs, their ingredients, and their *modus operandi* are so well understood, and the rules for using them so fully prescribed, that there is scarcely a possibility of the patient's falling into error. The waters of *Aix la Chapelle*, for example, rendered famous by Charlemagne, who made that place his residence, and occasionally held his levee in the bath, are recommended by Hufeland in dyspepsia, jaundice, hypochondriasis and such affections; but the same author forbids them in phthisis, in cases of extreme debility, or where there is a disposition to hæmorrhage, &c. So the waters of *Spa*, among the most celebrated in Europe, are prescribed in complaints arising out of engorgement of the abdominal viscera, in jaundice, vomiting, depending on atony of the stomach, dropsy, fluor albus, &c; but they are injurious, we are told, to plethoric and irritable habits, and in all diseases of an inflammatory grade. And the *Harrowgate* water, which, according to Armstrong, is even more efficacious in affections of the liver than mercury, must, nevertheless, be used with extreme caution, if admissible at all, in diseases of the chest.

It is becoming a matter of much moment that the constitution and remedial qualities of our mineral waters should be ascertained with precision, since every year is bringing them more extensively into use.

Kentucky abounds in mineral sprngs. Almost every neighborhood has one. But as they generally contain little else than sulphuretted hydrogen, with the earthy substances

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common to all water in limestone regions, they are not remarkable for any healing virtues, and have attracted but slight notice. Those about to be mentioned are, however, striking exceptions, having long been *watering places* of considerable note. Dr. Drake has described them at some length in the 2d vol. of the Western Medical and Physical Journal; and they are briefly noticed by Dr. Bell in his excellent work on "Baths and Mineral Waters."

The Olympian Springs.—These springs were known to the early settlers of the country as the *mud lick*, a name which many still prefer to its modern, and more classical one. They are situated about fifty miles east from Lexington, among the last western ranges of the Alleghany mountains. The traveller, as he leaves Lexington for them, passes for many miles over the fine soil and beautiful undulating country, for which the Elkhorn tract is remarkable. The prevailing formation is secondary limestone, which is continued in every direction for many miles around. At Slate Creek, forty miles from Lexington, and within ten of the springs, it gives way to *third gray wacke*, which extends as far as I have travelled east beyond the springs. The varieties of this rock met with in this locality are red sand stone, and pyritiferous slate, of which the latter is most abundant. It may be remarked that wherever this rock prevails, mineral springs, especially the chalybeate, may be expected. The iron pyrites abounding in it, exposed to the joint action of moisture and the atmosphere, is converted into sulphate of iron, with which, as well as, occasionally, other forms of iron, the water percolating through the rocks becomes impregnated. Such a change is in continual progress in the neighborhood of these springs, where, on the banks of the streams, large masses of the shale are seen crumbling and falling in, and beds of copperas forming. In sinking wells in this district fragments of iron pyrites are dug up, which, to form copperas, require nothing more than exposure to the air.

Argillaceous iron ore is also found in many places in the vicinity of the springs, and there are two or three works at

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which it is smelted. No beds of coal have yet been discovered, but from the traces of it met with in Licking river, a few miles distant, there can be no doubt that it is one of the mineral substances that may be looked for in this region.

During our short stay at these springs nothing more was attempted than an approximative analysis of the various waters, but the results are perhaps sufficiently accurate for all the purposes of invalids and physicians. Every ingredient, it is believed, has been ascertained, and an approach made to the relative proportions of each. Of the Olympian Springs there are five which, though all embraced in one or the other class of *saline*, *sulphur*, or *chalybeate*, yet differ sufficiently in their combinations to merit each a brief notice.

1. The *Salt Sulphur* is the principal spring of this group, the one most used, and perhaps the most efficacious. It rises near the centre of the valley, which, in its unimproved state, constituted the mud lick. On every side it is surrounded by hills from two to three hundred feet in height, which contrast agreeably with the level country just passed over, affording a picturesque and romantic prospect. The water of this spring, with the one next to be mentioned, once inundated the lower portions of the valley, and its qualities attracting great herds of deer and buffaloes, the soil was trod by these animals into a mire which presented, before it was improved an unsightly aspect. It is now beautifully set with grass. The water is pumped up from a shallow well, and is abundant. Its temperature is 58° of Fahrenheit, which does not differ far from that of common springs. It is limpid, but on standing deposits a white precipitate. It has a sulphurous smell and the taste of a weak brine, and may be assigned to the class of either saline or sulphurous waters. On applying tests the following were the phenomena presented.

1. Oxalic acid produced a white precipitate, as well after as before boiling.

2. Lime water threw down a dense white precipitate, soluble, with effervescence, in muriatic acid.

3. Nitrate of silver occasioned a very dense precipitate.

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4. Phosphate of soda and carbonate of ammonia caused a slight flaky precipitate.

5. Metallic silver was tarnished, and characters traced in acetate of lead became visible.

Neither galls nor prussiate of potash produced any discoloration, nor did muriate of baryta afford a precipitate. From which it may be inferred to contain the following substances.

1. Sulphuretted hydrogen.
2. Carbonic acid.
3. Muriate of soda, which is the characteristic ingredient.
4. Muriate of lime in small quantities.
5. Muriate of magnesia Do.
6. Carbonate of lime, and possibly carbonate of magnesia.

The gaseous contents are not copious enough to make their escape in bubbles, but their presence renders the water light, enabling the stomach to bear large quantities of it without oppression. It contains no sulphate, nor a trace of iron, notwithstanding the abundance of this substance in the superficial strata of the neighborhood. Unlike the springs which remain to be described, this rises perpendicularly, from a lower point of the valley, and, no doubt, from a different formation. It is known to geologists that the *saliferous* lie below the *pyritiferous* rocks, and among the former this spring doubtless has its origin.

2. The *Salt* spring rises a hundred yards from the Salt Sulphur, in the same valley, and is no doubt a branch of the same stream, since it exhibited all the appearances with the same reagents. It is only mentioned because from containing less sulphuretted hydrogen, it is very generally considered a different water.

3. The *Chalybeate* spring issues in a small, pellucid stream from the north side of one of the hills which bound the valley of the mud lick. The rock down which it trickles is of red sand stone, the prevailing formation of the rivulet into which the spring, after running a few feet, is emptied. But pyritous shale enters with it into the formation of the hill, as is

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evident from its southern side, where the latter rock appears. The water deposits a small quantity of ochry matter, and its surface is covered with an iridescent pellicle. It is limpid, inodorous, and styptic to the taste. Its temperature is about that of the springs in the neighborhood. The characteristic ingredient of this spring is iron, in combination, probably, with sulphuric acid, or sulphate of the protoxide of iron (copperas;) and although it contains a portion of sulphate and carbonate of lime, they do not exist in quantities to affect its medicinal properties. It may therefore be regarded as a pure chalybeate water.

4. The *Vitriol* spring breaks out on the opposite side of the same hill. This, though spoken of as differing from the others, and regarded generally as containing some free acid, exhibited all the appearances of the Chalybeate with the same reagents, and may therefore be considered identical with it in composition, except that it holds less iron in solution. It is used as the common beverage of the family, and for most culinary purposes, but as it blackens tea, it is rejected in the preparation of this article.

5. The *Black Sulphur* spring issues from the northern base of the southern mountain boundary of the valley, nearly in a straight line with those already mentioned. Pyritous shale, containing red oxide of iron, is the rock in the midst of which it rises. It is clear, cold, of a sulphurous smell and styptic taste, depositing a black sediment upon the bodies over which it flows. In addition to iron, which it holds in common with the Chalybeate and Vitriol, this spring also contains sulphuretted hydrogen. Neither substance is abundant, but they impart to it, in a sufficient degree, the properties of a Sulphur and Chalybeate water.

6. The *White Sulphur* spring, the only remaining one of this group worthy of any notice, issues from the same species of rock at a distance of five miles from the others. By many invalids it is preferred to all the rest, and the ride to it which lies over a fine road contributes to its efficacy. The characteristic ingredient of this spring is sulphuretted

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hydrogen, of which it contains much more than any other in the neighborhood. It also contains carbonic acid, carbonate, and probably muriate of lime, and a trace of iron. But of the two latter substances the quantity is exceedingly minute.

The varieties of water found here, then, are a *saline* and *sulphur*, a pretty pure *saline*, a pure *chalybeate*, a *chalybeate* and *sulphur*, and a strong, and nearly pure *sulphur;* which is a greater diversity than is often met with in the same space, and one of the most interesting features of the Olympian Springs.

Varying thus in their composition, it is clear that they are not eq ually applicable to every class of diseases. The Chalybeate and the Salt-sulphur are indicated in opposite states of the system, nor are the Chalybeate and White Sulphur precisely analogous in their operation.

By some practitioners and writers the Chalybeate spring, along with the family of remedies to which it belongs, is rejected altogether, nor is it doubted that the range of their application is comparatively a limited one. Nevertheless, experience clearly teaches that there is a class of disorders, for which tonics are the appropriate remedies, and the difficulty consists not in determining their efficacy, but in discriminating the cases in which they are proper. Dr. Bell in his work, already referred to, on Baths and Mineral Waters, seems to me to have pointed out very satisfactorily, in the following passages, the morbid condition of the system in which they are indicated.

"The tonic power of chalybeate waters is admitted by all, and yet misunderstood by a large number of persons who familiarly use them with that view. In cases of pure atony or feebleness, not the accompaniment of febrile irritation nor of inflammation of an organ, these waters have a very beneficial effect. They would seem to act more particularly on the absorbents, and indeed the entire capillary tissue, to which they communicate increased activity and power. Hence in persons exhausted by disease, and whose chief

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complaint is languor, with cool skin, and a pale and moist tongue, chalybeate waters have an admirable effect. Their tonic action on the stomach is participated in by all the other organs and tissues. But this diffusive spmpathy implies, also, that with the augmentation of vital power of the animal economy generally there will be increased excitement of an already irritated or inflamed organ; and hence the effect of a chalybeate in chronic maladies may be considered as the test of the stage in which they are at the time. If there be merely the sequelæ of excitement and phlogosis, exhibited in dilated and enfeebled vessels and engorgement, the chalybeate by its action on the capillaries and absorbents will remove this condition, and equalize and give strength to the circulatory apparatus; but if the sensibility of the part, with other phenomena of excitement, be still present, pains and febrile disturbance will result from the use of the remedy. It is therefore of much greater importance to attend to the stage than to the name of the disease, in prescribing chalybeate waters. Slowness of functional discharge and of sympathies between the organs are soon removed by chalybeates; they are brought up by this means to their proper standard, and placed in a suitable rhythm; but all excesses of functional action bordering on inflammation will be aggravated by it.

"When, therefore, chalybeate waters are recommended to strengthen digestion, it is with the understanding that this function is not retarded by irritation of the stomach or intestines, or of the liver. They will be found useful in the sequelæ of hemorrhages and mucous discharges, provided the evacuation has been such as to cause general debility, and does not leave behind it a point of irritation, to which general excitement causes a speedy afflux of fluids, with augmented sensibility. This remark applies to hemoptysis, and menorrhagia, fluor albus, diarrhœa, chronic catarrh of the bladder, and old gonorrhœa—also protracted autumnal intermittents and associated dropsical effusions. In the second stage of scrofula, chalybeates have been used with benefit. For the cure of ame-

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norrhœa and the removal of sterility, they have been always celebrated."

This Chalybeate spring is more simple in its composition than that of Spa,* which has, perhaps, a higher reputation than any other mineral spring in Europe; but used in conjunction with the other springs of the place, the Salt Sulphur, for example, it would be efficacious in the same diseases. Those in which the Spa waters have been recommended are "engorgement of the abdominal viscera, as of the liver, spleen and mesentery; and in jaundice, melancholia, hypochondriasis, acidity of the first passages, leucophlegmasia; and sometimes dropsy, paralysis, exhaustion, the consequence of masturbation or excessive venereal pleasures, and the impotence thence resulting; colics, borborygmi, eructations, hiccups, vomiting, depending on atony of the stomach, loss of appetite, old diarrhœas, exhausting sweats, hysteria, excessive flow of the menses, fluor albus, chlorosis, sterility; in some ulcers, particularly of the liver, kidneys, and bladder; in nephritis and gravel; scurvy, cachexy, hepatic herpes, itchings of the skin, obstinate intermittents, worms, old gonorrhœa; and finally, they are useful in the convalescence from acute disease."†

But it is evident that an indiscriminate use of chalybeate waters in all these diseases would be much more likely to do harm than good, and the particular stages of each complaint to which they are adapted, must be determined at last by practitioners in every case. It may be laid down as an invariable rule, that where there is fever, or any inflammatory action, they are improper. They will also be likely to aggra-

* The waters of Spa, according to Dr. Jones, contain carbonic acid, sulphate of soda, muriate of soda, carbonate of soda, carbonate of lime, carbonate of magnesia, oxide of iron, silex and alumina. The salt sulphur and chalybeate contain, together, carbonic acid, sulphuretted hydrogen, muriate of soda, muriate of lime, muriate of magnesia, carbonate of lime, and iron, or nearly all the active ingredients of the waters of Spa. In composition, the united waters of these springs would resemble still more closely those of Pyrmont, which are scarcely less famous than the Springs of Spa. They contain, according to Westrumb, muriate of Soda, muriate of magnesia, sulphate of soda, carbonate of iron, carbonate of lime, carbonate of magnesia, and some resinous principles.

† Bell, (quoting Limbourg.) p. 459.

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vate all affections of the stomach and bowels depending upon irritation, nor are they applicable to consumption, to inveterate cancers, to marasmus, kept up by internal abscesses, or to apoplexy or epilepsy.

The proper time for using the Chalybeate spring is in the morning before breakfast, and if the bowels are constipated, as much of the Salt-sulphur should be taken as will produce one or two daily evacuations. It should be repeated before dinner again, and if no fever be present, before supper. The Black Sulphur spring is diaphoretic as well as tonic, and the White Sulphur diaphoretic or diuretic, as directed by external agents to one or the other surface. By alternating or combining it with one or the other of these, a free action of the skin and kidneys will be insured.

The White Sulphur spring bears a close resemblance to the springs of the same name in Virginia, which are known to be among the most efficacious in our country, and hence it may be prescribed in the same affections. In chronic hepatitis, dyspepsia, the slow fever following remittent, bilious, or ill cured intermittent fevers; in chronic rheumatism, cutaneous diseases, uterine derangements, such as obstructed menstruation, and leucorrhoea, the springs of Virginia have been known to effect remarkable cures, and the one under consideration has given proof of its efficacy in some of the same disorders.

In scrofula, a course of the black and white sulphur waters would promise more than medicine; and the invigorating mountain air, and change of scene, would prove powerful auxiliaries. In chronic diarrhœa, unattended by inflammation, these waters are valuable, the iron giving tone to the digestive organs, while the sulphuretted hydrogen excites the skin to an increased secretion, and thus diverts morbid action from the mucous membrane of the bowels.

The Saline springs remain to be noticed in their relation to disease. These waters are purgative, alterative, and diaphoretic, and therefore pervading in their action, stimulating the chylopoetic viscera to an increased discharge of

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their appropriate fluids, and tending to remove congestion wherever seated. Taken before breakfast to the amount of from three to six glasses, they generally effect a free evacuation of the bowels. Upon this property their powers, perhaps, chiefly depend, but there can be no doubt that the sulphuretted hydrogen, and muriate of lime also contribute to their efficacy. The latter substance, if we may rely upon the reports of modern authors, is an agent of potent and searching virtues. It has been employed with advantage in scrofula, and in these waters it is aided by the sulphuretted hydrogen, which promotes the healthy action of the skin, a thing of much consequence in this complaint. Its salutary influence is increased by applying it to the skin in the form of a tepid bath, which invalids in the use of the waters should on no account neglect.

A great advantage of these and all such mineral waters over purgative medicines is, that they may be persevered in for a great length of time without producing the irritation and debility, apt to result from the long continued use of the latter remedies. So slight is the disturbance of the alimentary function during their use, that the appetite is unimpaired, or even increased, and digestion goes on without interruption. In fact it is imagined that the gentle stimulation which they impart, is just sufficient to hasten the absorption of the alimentary matter.

In dyspepsia, depending upon a morbid sensibility of the stomach and bowels, these waters are a valuable remedy, relieving promptly the painful sensations, and if persevered in, and aided by the proper diet and regimen, affording permanent relief. To chronic inflammation of the liver, chronic dysentery and diarrhœa, they are well adapted, and in such cases have performed some of their best cures. They are also proper in subacute inflammation of the lungs, in chronic rheumatism, gout, jaundice, piles, cutaneous diseases, nephritic complaints—in all diseases, in a word, accompanied by vascular fulness.

The Blue Licks.—These springs rise on the banks of

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Licking river, forty miles north east of Lexington, on the main road from that place to Maysville. They have much celebrity, and are therefore worthy of a minute notice. The geology of the region in which they are situated does not differ from that which prevails so extensively throughout Kentucky, the formation being blue shell limestone, abounding in organic remains. After leaving Lexington and passing for thirty miles over the rich and beautiful country already described, the traveller to these springs reaches one, within a few miles of them, of a singular and very striking topography. He finds that the soil is growing thin, and sees rocks overgrown with mosses and lichens every where covering the surface of the ground; the tall timber of the fertile region which he has left is disappearing, giving place to stunted undergrowth, and presenting an aspect of dreariness and sterility. With the fruitful soil, the frequent farm-house has disappeared, or appears now only at greater intervals, and he experiences a feeling of loneliness, as if transported suddenly to a "far off" country.

Such is a picture of the country for several miles around the springs. The intelligent invalid as he journeys to them naturally inquires into the cause of these phenomena. Our object in this paper is not to treat of the geology of the country, but a few words of explanation on this subject will, perhaps, not be deemed out of place.

These peculiarities doubtless had their origin in artificial causes. At one time the hills, which, now bare, show as wasted skeletons, must have had a covering of clay and vegetable mould, for the country in every direction, at the distance of a few miles, is rich, and clothed in luxuriant vegetation. It is well known that the first adventurers to the West found it abounding in every species of wild game. Deer, elks, and buffaloes were met with in numbers altogether incalculable. These animals resorted in vast numbers to the springs, and the latter came from a great distance, and lingered for weeks in the neighborhood. It is said that the roads which they made in journeying thither, are still visible at this distant day.

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And, finally, the mastodon, and arctic elephant, we may infer from the osseous remains that have been exhumed, were among the ancient visiters of these watering places. The effect of such a concourse of animals sojourning for weeks together in the neighborhood, and feeding upon the shrubs, herbaceous plants, and such limbs of trees as were in their reach, bruising and lacerating their roots in passing to and fro, must have been in time, the destruction not only of the grass and more tender herbs, but of the forests themselves; and the soil thus deprived of its necessary support, would be ultimately washed by the rains into the streams and valleys. This cause, of course, has long ceased to operate; and with its cessation a new change has commenced. The soil is again in a process of renewal, and the sides and summits of the hills begin to assume an appearance of verdure and life. But to return to the main subject of this article.

Of these springs, all of which belong to the same class, the Salino-sulphurous, only one is improved, or in use. The temperature of this is about 58° of Fahrenheit. It is a copious stream, the spring being from four to five feet deep, and perfectly transparent. The deposit at the bottom gives a bluish hue to the waters. Sulphuretted hydrogen gas is constantly rising in bubbles to the surface. Owing to the diminished pressure of the atmosphere it is sent up more copiously before a fall of rain, and hence it performs for the inhabitants about the springs the office of a barometer. This fact was familiar to the workmen who were engaged in making salt there many years since.

At these springs was once made the salt which supplied Kentucky. I have been informed by a gentleman who was long engaged in the manufacture, that eight hundred gallons of the water yielded a bushel of salt; being in the proportion of 1 to 80. When carefully evaporated, this quantity of water left two or three quarts of *bittern water* which, it is said, was poisonous to cattle. Owing to the scarcity of fuel at a convenient distance from the springs, together with the diminished price of salt since the discovery of stronger sa-

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lines in western Virginia and Pennsylvania, the manufacture has been discontinued. Treated in the following manner, the water just taken from the spring afforded these results:

1. Nitrate of silver and nitrate of mercury yielded a very dense precipitate, insoluble in nitric acid, as well after as before boiling.
2. Muriate of baryta threw down a dense white precipitate, insoluble in muriatic acid—the same after boiling.
3. Oxalic acid caused a copious white precipitate.
4. Carbonate of ammonia, with phosphate of soda, gave a precipitate.
5. Lime water occasioned a slight, flaky precipitate before boiling, which dissolved with effervescence in muriatic acid.

From these and other tests used to determine the presence of various substances, this water may be inferred to contain the following ingredients:

1. Sulphuretted hydrogen.
2. Carbonic acid.
3. Muriate of soda.
4. Muriate of magnesia.
5. Muriate of lime.
6. Sulphate of lime.
7. Sulphate of soda.
8. Sulphate of magnesia.
9. Carbonate of lime, and probably a trace of carbonate of magnesia.

The analogy of this spring to the waters of the ocean, suggested the probability of its containing iodine and bromine, but neither substance was detected upon a careful examination. It contains no iron. Muriate of soda, which gives it the taste of a moderately strong brine, and sulphuretted hydrogen are its prominent ingredients.

In its action upon the system it is purgative, diaphoretic, diuretic, and alterative. Possessed of a greater variety of substances, and in greater abundance, it may be considered as standing at the head of the Saline-sulphurous waters in the

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west.* In composition it is nearly identical with the Harrowgate springs of England, containing every active ingredient found in those waters, and, as far as was ascertained, in about the same proportions.† We naturally infer from this that it would be useful in the same disorders. What these are, Armstrong with his usual enthusiasm and clearness, has informed us. He professes to have long and carefully observed the effects of the Harrowgate waters upon a number of diseases, and his eulogium, though it may seem extravagant, must yet be regarded as the report of an able and experienced practitioner. His remarks are as applicable to the Blue Lick, as to the Harrowgate springs, and as the subject is one of much importance, the following long extracts are given from his work. They may be considered the testimony of this distinguished writer and practitioner, borne to the efficacy of our salino-sulphurous waters. It may be added, that the abundance of sulphur springs in every quarter of our country, rendering them easily accessible to every patient, greatly enhances the value of these remarks with Western physicians.‡

"The first thing which struck me in regard to the operation of the Harrogate sulphureous water was, that the bowels might be opened by it day after day, week after week, without debility being produced; nay, on the contrary, most of the patients gained both strength and flesh notwithstanding they had daily and copious evacuations. This circumstance alone seemed to give the sulphureous water a most decided advantage over the purgatives in common use; for it must be admitted, that they cannot be long continued in chronic diseases, without diminishing the strength. For some time, therefore,

* It is proper to remark that the writer has not visited the Big Bone Lick, which is said to have the same composition.

† The Harrowgate, according to the analysis of Dr. Thomson, contain carbonic acid, sulphuretted hydrogen (abundant,) nitrogen, carbonate of lime, carbonate of magnesia, muriate of soda, (copious) muriate of magnesia, muriate of lime, sulphate of magnesia.

‡ The Nashville Sulphur Spring, described in the first number of this volume, is almost identical in composition with this, and consequently, the Blue Licks. It is a very valuable water.

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I solely attributed the efficacy of the sulphureous water to its purgative property, together with the peculiarity that its long continued exhibition caused no debility; and as for a considerable period, the complaints in which I prescribed were chiefly stomachic and hepatic, I was the more confirmed in this opinion as to its operation. But cases of chronic disease fell under my observation at various times, in which the sulphureous water was most decidedly beneficial, and that too where the bowels had been but scantily moved; and as the effect in these cases could by no means be purely attributed to its action on the intestines, I was led to inquire whether it might not have some other agency which had escaped my observation. In attending more closely to the changes which this water induced, I found that it acted most powerfully on all the secretory organs of the body, but more especially on the liver, on the kidneys, on the villous coat of the intestines, and on the skin. Here a new operation was presented to my inquiry. In reflecting on all the facts which had come before me, I ascertained that this water had removed chronic affections of various internal and external parts; and hence at length the inference followed, that it was really beneficial as a very powerful alterative, and that it had a direct influence over chronic inflammation, wherever it be seated, whether in the viscera, or upon the surface of the body. In still further pursuing the consideration of the subject, I was fully satisfied, that I had arrived at a general principle in the operation of a sulphureous water; for some time afterwards, on trial of that at Dinsdale, near Darlington, I found that its effects were also very powerful in chronic inflammations, though it be but slightly laxative. It at once, therefore occurred to me, that the chief efficacy of the sulphureous waters of Harrogate and of Dinsdale depended upon the sulphuretted hydrogen gas, which they both contained; and indeed the principal difference between these two waters is that the first contains less of the sulphurretted hydrogen gas, but more of the saline materials than the last; so that by

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adding very small doses of purgative salts to the one, it may be made to operate like the other in many cases.

"In several chronic affections of the head and abdomen, when aided by small bleedings and moderate purging, it has effected a cure where mercury had completely failed; and although the efficacy of mercury is so notorious in chronic affections of the liver, yet upon the whole I am disposed to think, that it is inferior to that of the sulphuretted hydrogen gas. In many hepatic diseases, however, it will be best to combine the operation of these two remedies at the same time; and this plan will often be found of vast advantage, but especially if the Harrogate water be employed so as daily to act as a purgative. Small doses of calomel, or of the blue pill, may be given for a short period every night at bed-time; and a large tumbler-glassful of the Harrogate water may be administered on the following morning before breakfast, and repeated every twenty minutes, until it operate by the bowels. But in such cases, the mercury should not often be given longer than a week or ten days: some old purgative pill may then be substituted at bed-time, and the sulphureous water continued every morning, until the symptoms entirely disappear. In conjunction with this treatment, it will occasionally be requisite to apply a blister now and then to the right hypochondrium; but in most instances this auxiliary will not be required, though in some obstinate cases it will be found very efficacious, when rapidly repeated. In what are termed stomach complaints, a regular perseverance in the Harrogate water will frequently do more good than all the medicines in the pharmacopœia; but in these, as in hepatic affections, it will sometimes be requisite to assist its purgative operation by an occasional blue pill, or by one of the compound rhubarb or aloetic pills at bed-time; and on certain occasions, a blister may likewise be beneficially applied over the epigastrium, and even repeated so long as the symptoms remain unsubdued. Chronic rheumatism and gout, and almost all cutaneous affections, will yield more rapidly to the continued internal exhibition of the sulphuretted hydrogen

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gas, than to any of the means now commonly employed; but in these, and also in most chronic complaints of the viscera, the recovery will be considerably expedited by the frequent use of tepid baths which contain the sulphuretted hydrogen gas. In many parts of this volume I have strongly insisted on the importance of attending to the functions of the skin both in health and disease; and I am fully persuaded, that much of the efficacy of the sulphuretted hydrogen gas is to be attributed to its action on the skin, through the innumerable pores of which it operates with remarkable power. At the same time it is to be recollected, that it is not upon one, but upon all the secretory organs, that it exerts a special influence; but certainly to the skin, as it is so capacious, a large portion of that influence is directed, and next in degree it is generally spent upon the kidneys, both of which circumstances make it so beneficial in cutaneous diseases, and in those of the urinary organs.

"It has already been mentioned, that the sulphureous waters will sometimes fail in chronic diseases of disordered action simply: and this probably happens in cases where the blood-vessels have been so long distended, as to have lost in some degree the power of returning to their ordinary state; but nevertheless, in the main run, these waters will answer an admirable purpose in chronic diseases, when deranged structure is not present. At the same time it ought always to be recollected, that they may easily be brought into disrepute from short or imperfect trials of them; and therefore they should, for the most part, be continued daily, in sufficient quantity, until the disease completely gives way, or until their inefficiency has been fairly proved by an unremitted perseverance. In some chronic cases of ophthalmia, of rheumatism, and of cutaneous affections, I have known them to effect a cure in two or three weeks: while in other cases, apparently similar in all respects, twice, thrice, or even four times that period has elapsed before the cure has been accomplished; and what is here affirmed of these external affections is still more strongly applicable to internal diseases, which are sel-

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dom speedily overcome by these waters, how completely soever they may yield at last. In illustration of this point as to internal diseases, it may be mentioned, that I have seen both chronic inflammations of the liver, and chronic inflammations of the rectum, where no benefit was produced for three or four weeks; and yet a continuance of the waters for six or eight weeks longer, has effaced every vestige of the morbid indications for which they were prescribed. The long use of ordinary medicines almost always tends to injure the general powers of the system; but this is not the case with those waters which contain the sulphuretted hydrogen gas largely, for they have an invigorating influence, though taken almost daily for weeks together. Yet whenever the sulphureous waters are prescribed, their operation should be narrowly watched; and they should always be omitted for a time when they produce head-ache, a white tongue, or some degree of febrile irritation. Some of these effects may follow their first exhibition, and especially when prescribed for subjects of a phlogistic diathesis; and similar symptoms also are apt to arise occasionally from their long continued use. Before they be re-administered in such cases, the employment of purgatives is commonly necessary, the operation of which generally removes the febrile irritation, so that they afterwards mostly act without occasioning any similar inconvenience. But in all affections combined with vascular fulness the bowels should be daily moved during their exhibition; otherwise they may be liable to heat and irritate in a way almost similar to mercury. Nor need we fear, with the exception of complaints of the chest, to purge patients freely every day with the Harrogate water; for under this system of depletion, they generally gain flesh and strength, particularly in gastric, hepatic, and intestinal affections. The tepid bath of sulphureous water, along with its internal use, is mostly very serviceable; but the temperature of the bath should be duly regulated, otherwise it may cause considerable exhaustion. The tepid bath of sulphureous water is most indicated in complaints of the skin, chest and belly; but it ought always

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to be had recourse to with caution, when the head is affected, as it may increase the flow of blood towards the brain."*

In corroboration of the experience of Dr. Armstrong, it is proper to state that the Blue Lick waters have been applied with advantage to most of the diseases enumerated in his treatise—to dyspepsia, chronic rheumatism, liver complaints, cutaneous diseases, &c. Invalids from the South laboring under hepatic derangements, have derived the most signal benefit from a course of these waters. In diseases of the skin, its efficacy is undisputed. It is reputed to have effected cures of scrofula in its incipient stage, as well as the milder form of that disease which attacks the skin and superficial lymphatic glands. Its similarity to the water of the ocean indicates its external use in all affections for which sea-bathing has been recommended. Many persons find three tumbler-glassfuls sufficient to move the bowels; but a majority require from three to six. This quantity produces no uncomfortable distension, and the appetite is generally increased by it.

Harrodsburgh and Greenville Springs.—These springs, three or four in number, are situated in the neighborhood of Harrodsburg, one of the oldest towns in Kentucky, about 30 miles from Lexington, and 170 from Nashville. The country is elevated and dry, without being broken. Limestone, containing magnesia, is the prevailing rock of this region. Within a mile of the springs an extensive vein of sulphate of baryta is found, and at a distance of fifteen miles, in a southeastern direction, pyritous slate, described as the prevailing stratum at the Olympian springs, is again met with. The springs break out at the base of the hill upon which the village is built—the Harrodsburg, within a few inches of each other; the Greenville at the distance of a quarter of a mile. The latter was the spring first improved, and for a time principally used, but it is now neglected except by a few visiters, who profited by its use in an early day, and still deem it superior to the others. In composition it is precisely identical

* Armstrong on Chronic Diseases and Sulphureous waters, pp. 60-71.

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with the most copious of the Harrodsburg springs, holding in solution about the same quantity of saline ingredients. Those of Harrodsburg, although made by art to issue at nearly the same place, have probably, an origin remote from each other, since they differ in some points of their composition. They are sometimes distinguished, and correctly, as the *Epsom* and the *Chalybeate* spring.

1. The *Epsom* issues in a more copious stream than the other, has a feebler sulphurous smell, a lower temperature, and is the one which, on account of these qualities, is chiefly used. On a careful analysis it was found to contain the following ingredients:

1. Sulphate of magnesia, which imparts its peculiar taste to the water, and is the characteristic ingredient. It is abundant.
2. Carbonate of magnesia, in a small quantity.
3. Sulphate of soda, Do.
4. Sulphate of lime, Do.
5. Carbonate of lime, Do.
6. Sulphuretted hydrogen, a trace.* The quantity of this gas is so minute, that characters traced in acetate of lead only became feebly legible after a quarter of an hour's exposure to a stream of the water. Of iron, no appearance was detected on a full examination.

2. The *Chalybeate* spring may be considered the same in constitution, with the addition of a small quantity of iron, and a stronger impregnation of sulphuretted hydrogen. Measured by a thermometer (Fahrenheit's) obtained at the springs, the temperature of this appeared to be 65°—that of the other 60.° It promptly discolors acetate of lead; is rendered purple by galls.

There is a striking analogy between the constitution of the Epsom spring, and that of the Seidlitz spring of Bohemia, which contains sulphate and carbonate of magnesia, sulphate of soda, sulphate and carbonate of lime, and carbonic acid. This

* This corresponds with the results of Drs. Best and Drake's analysis, and more confidence is therefore felt in its accuracy.

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spring was examined, and its powers warmly extolled, by the celebrated Hoffmann in 1721, and as it has maintained an unabated reputation for more than a century since, it is not probable that the praise which he bestowed was entirely undeserved. This writer enumerates many diseases in which he had witnessed the beneficial effects of this spring; and he remarks, what has been found to be a feature of mineral waters since first they were brought into use, that it evacuates the bowels freely without occasioning the pain and griping attendant on the operation of common purgatives. "These," he continues, "when they move the bowels freely, impair the strength, excite nausea and a sense of uneasiness about the præcordia, and destroy the appetite for food; but these bitter waters, on the contrary, evacuate the bowels effectually, while they induce neither languor nor debility, nor a loathing of food, nor dryness of mouth, with thirst, but the bitterness rather solaces the stomach, and increases the appetite."* Among the disorders to which he considers his favorite water applicable are, such as have their seat in the stomach and intestines, especially the duodenum, in which acidity and vitiated bile obtain; impaired digestion, accompanied by a disrelish for food, eructations, nausea, distention, heartburn, &c. hypochondriasis, in which difficult breathing, pain about the præcordia, general languor, disturbed sleep, constipation, anxiety of mind, palpitations of the heart, vertigo, and the like, attend.†

In many of the cachectic affections of females, in which the menstrual discharge is irregular, the circulation of the uterus languid, the appetite capricious, the face occasionally flushed, and the breathing difficult, he found this water a prompt and efficient remedy.

In like manner, it is serviceable to women about forty five years of age, whose systems are preparing to discontinue the menstrual function, and who are troubled with flatulence, transient flushings, loss of appetite, pain in the back, with swellings of the feet, and other affections attendant on this change.

* Hoffmanni Opera, Tom. v. p. 191. † Ibid.

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Also men from forty to fifty years old, who have devoted themselves to the cultivation of letters, leading inactive lives, and giving their minds up to profound meditations, and who labor under a depraved habit of body with all its consequent evils, have derived the desired benefit from the use of this water. In scorbutic complaints likewise, in the worms of children, in hæmorrhoidal affections, and finally, in the prevention of disease—the better part of science—he deems his spring superior to most other remedies.*

Such is the report of this able writer on the medical powers of the Seidlitz spring, which has been quoted at such length because the analogy between this and the springs of Harrodsburg is so complete, that, the names being changed, all the remarks concerning the former might, it is believed, be applied to the latter.

But, from their composition, there can be no difficulty in understanding the *rationale* of these waters. They are purgative, diaphoretic, and diuretic, and as they diminish arterial action, and promote various secretions, they doubtless exert an alterative influence upon the system. Hence, in all diseases attended by inflammation; in obstructions of the various viscera, chronic rheumatism and dysentery, and the earlier stages of gout; in cutaneous diseases, and complaints of the chest, following colds, measles, or scarlatina, and dependent upon inflammation of the bronchiæ, they are clearly indicated.

Nor is it *a priori* alone, to use the language of Hoffmann, in relation to his favorite spring, from a scrutiny of the composition of these springs merely, but *a posteriori* also, after a fair trial of their effects in disease, that we are able to report thus favorably of their powers. They have now been many years in use. They have a diffusive reputation. Their waters, and the salts made from them, have been transported to distant parts of our country, where they have been employed by the victims of most disorders. They are visited every year by humerous invalids, many of whom return to

* Hoffmanni Opera, Tom. v. p. 192,3

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their homes with renovated health. During my late visit to them I met subjects of dyspepsia, liver complaints, chronic bronchitis, and numerous other affections of a kindred character, who were evidently improving under their use.

In New Orleans, and Baton Rouge, where much of the water from these springs has been used, it enjoys a high reputation. It has been introduced into army practice in the hospitals on the Mississippi, and is well spoken of by the attending Surgeons, as being peculiarly adapted to the complaints of soldiers resulting from intemperance, as also to bilious fever during the stage of convalescence.

The iron contained in the *Chalybeate* spring modifies its action, and enhances its remedial efficacy. It is, of course, better adapted than either of its neighbors to those diseases of debility which depend upon organic læsions, or have been induced by profuse discharges of any kind. It combines the virtues which I have attributed to the united waters of the Olympian springs, and may therefore be taken in all the complaints in which these are supposed to be indicated.*

There is no reason to doubt, that the combination of sulphate of magnesia, iron, and sulphuretted hydrogen, found in these springs, is as efficient as the analogous one of sulphate of soda, iron, carbonic acid, &c., existing in the Cheltenham waters of England. These, it is known, are deemed peculiarly efficacious in complaints which have followed a residence in southern climates. And we may conclude, not only from this analogy, but from much experience, that the Harrodsburg springs will perform for the valetudinary of our south, what the Cheltenham do for the British victims of the burning sun, and the miasms of India. For such, this watering place affords a delightful retreat during the summer months; and the number who resort to it from that quarter is every year increasing. Its reputation for relieving most of the complaints incident to a residence in that climate, is becoming pretty well established.

Before closing our notice of these springs, it is proper that

* See p. 384.

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a few remarks should be made in relation to the course to be observed by those who are using mineral waters, without some regard to which they need scarcely hope to enjoy their full benefit.

Hoffmann, who has been already so often referred to, concludes his elaborate account of the Seidlitz spring by remarking, that the efficacy of the external use of this water is not to be lightly esteemed. And the same might be repeated of all the springs mentioned in this article. Independently of the general salutary effects of the bath, they contain one of the forms of sulphur, a remedy which has long been in high repute in diseases of the skin. No watering place should be deemed complete without the conveniences for bathing; nor ought any invalid neglecting this to flatter himself, that he is in the use of all the necessary means for restoring his health. His diet must be regulated with care. If he indulge too freely the keen appetite excited by the use of the waters, their good effects will be counteracted. Most of the complaints of this climate it is well known, require a mild, unstimulating diet, nor should it be forgotten that, in excess, even such food may prove nearly as injurious as that which is of an improper quality. Perhaps the only rule that can be laid down on this subject is, that the valetudinarian, while at the springs, should confine himself to such articles as he has found on experience to be digested most easily. In these matters, patients must be left to decide for themselves; but to act judiciously, they must observe closely, and practise self denial.

His hours of sleep should be regular, and neither too few nor too many. He ought to retire early to bed, since it is known that the sleep taken before midnight is most refreshing. And early rising is also insisted upon by most writers as important to rapid convalescence. This affords time for taking exercise in the cool of the morning, which at that period is most invigorating. To the exercise, invited by a visit to the springs, it is known that many attribute all the good effects of watering places. Without stopping to discuss the point, it may be admitted that the change of habits which such visits

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occasion—the relaxation from business or study—the cheerful society—the novel scenes presented, with all the exhilarating circumstances connected with travel, are well calculated to soothe the atrabiliary temper, and have in many instances, through the well known action of the mind upon the body, checked the progress of chronic disorders. Agents of such efficacy, when conjoined with the use of medicinal waters, under the direction of judicious and enlightened physicians, must be esteemed precious resources for the sick.

In summing up the comparative advantages of these watering places, as resorts for the valetudinary, the variety of their waters, the beauty of their scenery, the abundance of game, and the opportunities afforded the naturalist, in the mineralogy and botany of the region, for pursuing his studies, may be mentioned as the chief which belong to the Olympian springs. These impart a pleasurable and healthful excitement to the mind, and furnish inducements to exercise. The impregnation of the waters is feebler than that of the other springs, but ample trials have proved that they are by no means destitute of efficacy in disease; and by combining them in the manner proposed in this paper—a combination similar to that recommended by Hoffmann in the case of the Seidlitz spring, and the martial water of Lauchstad—and discriminating more carefully the stages, as well as the character of the diseases to which they are applicable, their powers will, probably, be yet much farther developed.

The scenery about the Blue Licks is also characteristic and interesting. Within a mile of the springs may be seen the battle-ground of one of the bloodiest conflicts of the early settlers with the Indians. The water possesses all the powers of the best springs of the salino-sulphurous class, its ingredients being various, active, and abundant. It is probable that its alterative influence upon a disordered system has not yet been fully appreciated, and that as it comes to be tried more extensively it will acquire more repute in gastric and hepatic complaints. The water does not bear transporting well, since the sulphuretted hydrogen gas is chiefly decom-

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posed and the sulphur precipitated, on exposure to the air, which renders it more offensive, as well as less efficient. Nevertheless, it is brought in barrels to Lexington, where it is much used, and is reported to have effected cures.

At Harrodsburg there is less in the natural objects of the place to engage and interest the mind of the invalid. A ride of a few miles, however, will bring him to the Kentucky river, whose banks, rising in a solid wall of limestone, nearly four hundred feet above the narrow stream, are an unfailing source of wonder and gratification to the admirer of nature. At Shakertown, which he may pass on his way to the river, he will have an opportunity of witnessing the religious ceremonies and social policy of this peculiar people. In an opposite direction, a ride of a few hours will bring him to the Knob Lick, where, in the midst of surrounding fertility, he will see hills, from one to three hundred feet high, perfectly denuded of vegetation, which, acted on by the atmosphere and wasted by rains, are crumbling down and overlaying the neighboring valleys. The spectacle is novel and interesting. The conical summits of the hills, which are composed of marlaceous clay, repose upon a bed of pyritiferous slate, and from their composition this wasting process must continue, until valleys will be formed where the hills now stand.

But these particulars are in a great degree extraneous. Invalids will look chiefly to the medical properties of the waters. In this respect then, superiority must be conceded to the Harrodsburg springs over all others in Kentucky. They have been longer and more faithfully tested, and their *modus operandi* is better understood. They are more prompt and decisive in their action upon the system, and their cures have been more numerous and less equivocal. In addition, their situation, if less picturesque and romantic, is more eligible on the score of salubrity. The region in which they issue, from its dryness and elevation, is one, which promises as much as any other in seasons of sickness; whereas the deep, humid valleys which give rise to the Olympian and Blue Lick springs, are more likely to originate miasmatic diseases.

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REVIEWS.

ART. V.—"*On Baths and Mineral Waters. In two parts. Part I. A full account of the Hygienic and Curative powers of Cold, Tepid, Warm, Hot, and Vapour baths, and of Sea-bathing. Part II. A History of the Chemical Composition, and Medicinal Properties of the Chief Mineral Springs of the United States and of Europe.* By JOHN BELL, M. D. Lecturer on the Institutes of Medicine and Medical Jurisprudence, Member of the Medical and Kappa Lambda Societies, and Fellow of the College of Physicians, Philadelphia, and of the Georgofili Society of Florence, &c. &c.

Continued from No. II. Page 235.

CHAP. VI. This chapter, like several of the preceding ones, is full of interest, and contains much matter important to be known and reduced to practice, by the people of every community, where health is valued, and disease dreaded. It treats of the warm Bath, in its several degrees of temperature, *tepid*, *warm* and *hot*, giving a better account than we have seen elsewhere of its hygienic and curative powers, and of the modes of applying it. As the *most* effectual, if not the *only* effectual means of external cleanliness, which is not merely emblematical of internal purity, taste, and refinement, but contributes to maintain and promote them, warm bathing should be well understood and constantly practised, by the inhabitants of every country, who aim at being distinguished for elegance or cultivation. No matter what other qualifications are possessed—youth, beauty, health, vigour, or sprightliness,—if personal cleanliness be wanting, human nature grows rank and offensive. This is especially true as relates to females, a part of whose essence should be purity and sweetness. Were there any kinds of domiciliary visits and inspections, that we would encourage or tolerate they

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would be those of Boards appointed and empowered to look after and enforce cleanliness of person and under-clothing.

But it is not the cause of beauty and attractiveness alone, that cleanliness subserves. It contributes also, in a high degree, to the promotion of comfort, health, and mental activity. A diseased skin, I mean a skin deficient or deranged in its functions, deranges, more or less, the functions of the whole system, including the higher ones of the brain, as well as others. But that a soiled skin is, in some way, impeded or perverted in its action, cannot be doubted by any one competent to judge of the subject. Can the nose, the eye, or the tongue and lips perform their functions healthily and fully, when smeared with lamp black, dust, or any other kind of impurity? No, certainly. On this point, it is not possible for pathologists to differ in opinion. Nor is it less certain, that adhering impurities injure also the action of the skin. If they do not pervert that action, they at least enfeeble it, and thus unfit the organ to protect the system against the influence of deleterious causes, to the same extent it might otherwise do. This is a consideration of peculiar importance to the American people, at the present moment. Pestilence in the form of cholera, which has already swept with desolation and dismay, over Asia, and Europe, is already in the midst of them. They are told that temperance is their best safe-guard against it. To this let them add habitual purity of the skin, produced by the judicious employment of warm water, united to proper clothing, and their shield will be greatly strengthened by the measure. Cleanliness bears to the skin nearly the same relation, that temperance does to the mucous lining of the primæ viæ. And its influence on it is similar. In each case the tissue is preserved in health, and in a condition fit for vigorous action. But the first action of the matter of pestilence, whatever may be its form or name—cholera, sweating-sickness, yellow fever, or pestis vera—is on the one or the other of these surfaces, or on both of them at once. In proportion to their health and vigour, therefore, will be their resistance of the evil. If in proper tone, they may resist it

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successfully. If not, the poison of the complaint will take effect. Let the people of the United States, then, practise temperance and cleanliness to the requisite extent, and they may look, with diminished apprehension, on the approach of cholera. The disease will be less likely to make an attack, and less formidable when it does so.

The limits of temperature of our author's *Warm* bath, as heretofore stated, are from 92° to 98° of Fahrenheit, 95° being the medium. The remarks made by him, in relation to the fitnesses of these several temperatures to the varying constitutions of different individuals, are judicious and practical, and therefore worthy of the attention of persons who bathe, and of those who direct or superintend the process. The most unerring test of the fitness of the temperature to the constitution of the bather is, its exciting in him pleasurable sensations. On this point our author says.

"On immersion in water at this last degree, it is believed that a large majority of our species will experience a decided, yet pleasurable sensation of warmth; and obtain the good effects, most generally attributed to this kind of bath. An approach to the upper, or that of 98 degrees limit, will be most grateful to those persons who habitually, or from accidental circumstances, have a skin possessed of little activity, coldness of the hands and feet, and slow circulation—while the lower limit, or that at 92 degrees, will be preferred by the sanguine and plethoric with active circulation and hot skin. Between 92 and 85 degrees will be the range of that uncertain kind of temperature usually designated by the term tepid or milk warm. I say uncertain in reference to the sensations produced by immersion in it. Imparting less luxurious enjoyment, and not so susceptible of use in doubtful cases, such as in disease, and after extraordinary or exhausting bodily exertions, the tepid bath is, notwithstanding, that variety which is the best suited, as a means of public hygiene, for general bathing, and ablution and purification."

Dr. Bell is urgent in his advice to the females of our country, to resort more frequently than they do to the luxury and benefit of the warm bath. To this effect are the following passages, which relate to its hygienic and beautifying influence.

"To wash one's self ought to have a much more extended meaning than people generally attach to the words. It should not consist merely in washing the hands and rubbing a wet towel over the face, and sometimes the neck: the ablution ought to extend over the entire surface, and it is particularly neces-

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sary where often least thought of, as at the bends of limbs &c. In a tepid bath, with the aid of a little soap and sponge, or brush, the process may be completely performed—with a feeling of comfort at the moment, and of much pleasure afterwards. Cleanliness of body is in closer connection with purity of mind than is generally imagined; and both ought to be associated with our ideas of personal beauty and loveliness. The Grecian fiction, of Venus being of "ocean born," is typical of the aid which beauty is expected to derive from frequent ablution and bathing.

Females are not, we fear, adequately impressed with the full importance of the practice here recommended. They often spend much time at the toilet—great pains and expense are incurred to obtain, select, and arrange the finest materials for dress, and to display colours in the most tasteful contrast—but is that which ought to precede all these arrangements, the tepid or warm bath, regularly used? Is it had recourse to on the morning, after the fatigues and exertions in a ball room, or an excursion of pleasure in carriage or on horseback? Some ladies will say, aye—but I greatly fear they are in so small a number, as to be entitled to be considered exclusives of the first water, even though they may not show off in silks and brocades. In the interests of vanity alone—a desire to appear to the greatest advantage in the eyes of the other sex—females should rigidly and regularly follow the practice of daily ablution. This is a point properly urged on their attention by writers of their own sex. Among these, Mary Wollstoncraft, in her "Vindication of the Rights of Women," says, "Were I to name the graces that ought to adorn beauty, I should instantly exclaim, cleanliness, neatness, and personal reserve. So necessary indeed is that reserve and cleanliness which indolent women too often neglect, that I will venture to affirm that when two or three women live in the same house, the one will be most respected by the male part of the family who reside with them, leaving love entirely out of the question, who pays this kind of habitual attention to her person."

An opinion once prevailed, and is maintained by many, even now, that the warm bath tends to relax and enervate the system, rather than to refresh and invigorate it. In his refutation of this belief, the Doctor contends, we think correctly, that the error has arisen from the *abuse* of warm bathing, and from confounding its effects with those of the *hot* bath, which often debilitates by excessive excitement. He alleges very properly, that, far from exhausting or in any degree diminishing the strength of the human body, the warm bath, judiciously employed, cherishes and protects it, and thus gives greater freshness and vigour to those who are far advanced in years. Lord Bacon believed that the tradition of Æson being restored to youth, by means of the medicated cauldron of Medea, was but an allegorical repre-

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sentation of the warm bath, in its retarding the approach of old age. By the advice of an eminent physician of England, Dr. Franklin is known to have spent a portion of every day in a warm bath, during several of the last years of his life. And we have his own testimony, that he derived great refreshment and comfort from the practice. The salutary influence of warm bathing on old men was known to Homer. Hence that writer represents Ulysses, so ripe in experience and human wisdom, as recommending the warm bath to his father Laertes, in the debility of his age, and encouraging him to use it, by assuring him that he had known it singularly serviceable in similar cases. The Sage adds, that its reanimating effects had rendered warm bathing a common practice among men enfeebled by age.

From page 230 to 233 our author recites a few experiments performed on himself, by the warm bath, the result of which was, that "it has a tranquillizing effect, and, by allaying excessive excitement, and moderating excessive heat, refreshes and in a measure invigorates." Our own experience enables us to testify to the same effect. When fatigued by journeying through heat and dust, we have often been eminently refreshed and invigorated, by the use of the warm bath. We travelled recently, on horseback, upwards of forty-five miles in nine hours, the weather being warm, the roads dusty, and the chief movement of our horse a long elastic trot. At the end of our journey, our feelings were any thing but pleasant. In plain terms, we were fatigued and sore. But a warm bath, with moderate friction of the skin, restored us to comfort; and a few hours rest removed any remnant of lassitude or uneasiness that survived the bathing.

With the plainness and simplicity of Dr. Bell's explanation of the tranquillizing and invigorating influence of the warm bath, we are pleased. He attributes it partly to the grateful stimulus of the warmth on the nerves and brain, and in part to the restoration of the equilibrium of excitement and circulation, which had been previously in a deranged condition. In other words, the bath gives a centrifugal and natu-

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ral turn to the action of the system, which had before been centripetal and unnatural. It acts revulsively, by eliciting blood from internal parts, where it superabounds, to external ones, where it is wanting. Thus is broken harmony restored, and all attending discomfort removed. The grateful excitement of the brain, produced by the application of warmth to the nerves of the skin, has no doubt a material agency in the process. In further proof of the tranquillizing effects of the warm bath, it is stated that it diminishes the frequency of respiration, as well as of the contraction and dilation of the heart.

After a passing remark on the supposed increased absorption of the water, by the skin, in the process of warm-bathing, in which we do not concur with him, our author, entering on what he considers a more important discussion, says:

"It now remains for me to state the real influence of the warm bath over the functions of the animal economy. If it be not relaxing, in the common acceptation of the term, nor heating, nor stimulating, in what manner and under what circumstances does it display its good effects? Should we reply, that it acts as a sedative, by moderately absorbing heat, and rendering the respiration and circulation slower—this will not be deemed an adequate explanation, since cold, a much more powerful sedative, has not the same effects. And yet we are not allowed to doubt of the tranquillizing and soothing, in fine, of the sedative operation of warm bathing. There seems to be, however, this difference between the cold and warm bath, that while the former depresses at once, and powerfully, the circulating and nervous systems, benumbing and rendering them torpid even unto death, or preparing for a violent and irregular reaction —tingling and glow, the latter is just in that relation with the nervous system to convey a sensation, soothing by its mildness and active by its diffusiveness, and with the capillary system to invite blood into the smaller vessels of the extremities, which were of a temperature less than the water, and thus produce an equal yet moderate fulness and action of these vessels; an effect still further insured by the softened and diminished resistance of the external tegument, or cuticle. This equalised fulness of the cutaneous capillaries is doubtless sympathized in by the membranous ones generally, and thus the resistance to the heart's propulsive power is less, and its contractions are in consequence fewer, and at the same time more equable. The same cause renders respiration easier and slower. Another cause of this latter effect is the diminished action and rest of the brain. In evidence of the warm bath exerting that pleasurable influence over the nervous system, on which its effects in a great measure depend, I may mention its tendency to produce sleep—a state alike removed from either class of sensations, the excitingly pleasurable or excitingly painful; and a

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state which may be brought on by gentle friction exercised with a smooth and soft body, such as the hand, over the skin—the same surface on which the warm bath exerts its primary and chief influence. For obtaining natural sleep also, the temperature must be pretty equally diffused, and the skin in tolerably uniform apposition with its protecting envelopes of clothing, not unduly pressed upon, nor stimulated, nor exposed in any one quarter. All these conditions are obtained by the warm bath; and hence we find an explanation of a universally observed and recognized fact, that immersion in such a medium is eminently favourable to sleep. The sleep here is natural and different from that fatal sleep—the torpor of the brain from extreme cold, or from that forced sleep brought on by diminishing the sensibility of the nerves and stupifying the brain by narcotic drugs. But it is not necessary to take sleep as the representative and final effect of the beneficial operation of the warm bath. Its soothing influence is clearly enough evinced in the pleasant rest enjoyed by the senses, the brain and the muscular apparatus for voluntary movement, and in the harmonized action and balance of the internal or nutritive organs. And if to the warm bath be added the oriental accessary of gentle friction of the skin, the person subjected to these processes will more than realize all the boasted effects of animal magnetism."

This discussion being finished, as a preparatory step, the Doctor thus proceeds.

"From what has been said of the direct operation and effects of the warm bath, we are prepared to state in advance, the range of diseases in which it will exert a curative agency. In the first place, all morbid exaltation of sensibility, acute pain, alone or accompanied with irregular and convulsive action of the muscles, will be greatly mitigated, and often removed by this remedy. Its use is particularly called for in the *convulsions* of children and the *hysterical affections* of females, as well as in the varieties of colic, from the simple spasmodic, to the bilious and painter's (colica pictonum.) We are not to forget, however, in these, as indeed in all other maladies marked by convulsive movements of the muscular system, the importance of removing the local irritant, or mitigating by means directly applied to the part itself, the local irritation on which we find the sympathetic and often alarming disturbances of the brain, muscles and blood vessels, as in delirium, convulsions, and fever, to so frequently depend. But although we may not entirely cure or arrest the disease by warm bathing, we shall mitigate its violence, and gain time for the application of other remedies. Even after the removal of the offending material agent, the part first irritated by it is left in such a state as to transmit for a time morbid impressions to remote and important organs, on the mere application of a common and natural stimulus. It is thus that the removal of a splinter or a thorn from the hand or foot, of a decayed tooth, of the undue pressure exerted by dense fibrous tissue on a protruding infantile tooth, of worms, and irritating ingesta from the alimentary canal, although productive of marked relief, is not always attended with an entire cessation of the convulsions and other disturbances in the animal economy, which were originally produced by one or other, respectively, of the above mentioned irritants. The brain and heart are also, in some persons, pe-

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cularly responsive to the slightest deviation from the customary healthful excitement, as well as to the remains of irritation in disease. Warm bathing, under all these circumstances, is an excellent means of soothing the nervous and sanguineous system, and of preventing a convulsive habit from being formed.

Children, more prone than adults to convulsions, are in a more especial manner benefitted in these cases by warm bathing—owing, we may presume, to the sympathies of the skin with the brain, and indeed with all the important organs of the economy, being more active and diffusive than in after life. In cases of great determination of blood to the head, with throbbing temples and flushed cheeks, independent of other remedies, it may be proper to apply clothes wet with cold or iced water to the head while the patient is in a warm bath."

The same practice has been found eminently serviceable in *mania* and *mental derangement* generally, in which extreme wakefulness and a dry skin are predominant symptoms. But, to attain the desired end, the patient must remain in the bath from two to eight hours daily, until his complaint gives way.

In bilious colic, and *colica pictonum*, warm bathing and opium are the most effectual remedies for pain and spasm. But, in cases of vascular excitement, which occasionally occur, these require the aid of venesection.

Infantile cholera, and the cholera of adults, often imperatively call for the use of the warm bath, where there is much coldness of the skin generally, or of the extremities. This condition of the surface occurs most frequently in the latter complaint. "*Cholera Infantum* requires a bath, the temperature of which shall be in the inverse ratio of the heat of the skin—the greater and more acrid the latter, the colder will be the water, and *e contrario*, a cold skin, especially after the disease has been of some duration, will be most benefitted by warm immersions or affusions. The same rule is to guide in the temperature of enemata." The Doctor adds, that "on the judicious application of this simple remedy, water, in the manner above stated, and the administration of mild diluent drinks, with the timely use of the lancet, and local bleeding by cups and leeches, will mainly depend the practitioner's success in *infantile cholera*." Our experience has taught us, that to these remedies must be usually added the judicious use of calomel, and sometimes

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of blisters. With this array of means, opportunely applied and skilfully directed, the disease, formidable as it is, can be generally subdued, with but little difficulty.

Dysentery and diarrhœa, especially when protracted to a chronic condition, are beneficially treated by the warm bath, and frictions on the skin in general, but more especially on the abdomen. The warm bath is also an important remedy in croup, strict attention being paid to the temperature of both the skin and the water, and also to the time the patient is allowed to remain in it. *Catarrh* and *Influenza*, incipient and chronic, may be always mitigated, and sometimes cured by warm bathing. So may *bronchitis*, subacute or chronic, more especially when it occurs in persons of the phlegmatic temperament, or in those advanced in years.

Asthma, of the nervous or spasmodic kind, is greatly relieved by warm bathing. So are *affections of the heart*, of which asthma is sometimes a symptom. This is more especially true of the latter disease, when it has ensued on the disappearance of chronic cutaneous eruptions or ulcers.

In *chronic* hepatitis, where the skin is dry and rough, and in nephritic disorders, and affections of the urinary organs in general, "warm bathing has long enjoyed great and deserved reputation."

Catarrhus vesicæ is often much relieved by warm bathing. So is *amenorrhœa*, "in females of what is called a rigid fibre." This complaint yields also at times to a "persistence in the regular use of warm pediluvia."

In no class of diseases is the medicinal agency of warm bathing more striking than in those affecting the skin. Obstinate herpetic eruptions, which had long withstood other alterative and depurative remedies, have often yielded to it, especially when aided by a "milk regimen." Even tormenting cases of "*moist herpes*" have been thus subdued.

Fever, in its early or forming stage, may be greatly mitigated, if not arrested, by the frequent repetition of the warm bath. And, in convalescence, the same remedy, skilfully employed, is particularly efficacious. The same is true of it,

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in the very commencement of a paroxysm of intermitting fever. In this case it should be continued until reaction comes on, when the hot stage will be found to be greatly reduced in violence, if not entirely prevented, by the occurence of a mild but general perspiration.

Our author's remarks on warm bathing, in exanthematous complaints, are judicious and important, well meriting the attention of the practitioner.

Few complaints are more certainly or promptly relieved, by any remedies, than pains and aches produced in the joints and limbs, by exposure to cold and humidity, are, by the warm bath. The pains of gout and rheumatism, especially when of a chronic character, are often entirely removed, by a due persistence in the use of the same means.

Our author furnishes us with the experience of our countryman, Count Rumford, for a twofold purpose; to illustrate the time of the day most suitable for bathing; and to show that the vulgar fear of "taking cold," on account of using the warm bath, is totally unfounded. As we deem the narrative important, we shall quote it entire.

"Being at Harrowgate, on account of my health," says the Count, "I at first went into a bath warmed to about 96° of Farenheit's thermometer every third day. At first I went into the bath about ten o'clock in the evening, and remained in it from ten to fifteen minutes; and, immediately on coming out of it, went to bed, my bed having been well warmed, with a view to prevent my *taking cold*.

"Having pursued this method for some time, and finding myself frequently feverish and restless after bathing, I accidentally, in conversation, mentioned the circumstance to an intelligent gentleman, who happened to lodge in the house, and who had long been in the habit of visiting Harrowgate every year. He advised me to change my hour of bathing, and to stay longer in the bath, and, above all, to avoid going into a warm bed on coming out of it. I followed his advice, and shall have reason, all my life, to thank him for it.

"I now went into the bath regularly every third day, about two hours before dinner, and stayed in it half an hour; and on coming out of it, instead of going into a warmed bed, I merely had myself wiped perfectly dry with warmed cloths, in a warmed room adjoining to the bath; and dressing myself in a bed-gown, which was moderately warm, I retired to my room, where I remained till dinner-time, amusing myself with walking about the room, and with reading and writing, till it was time to dress for dinner.

"The good effects produced by this change of method were too striking not

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to be remarked and remembered. I was no longer troubled with any of those feverish heats, after bathing, which I experienced before; and, so far from feeling *chilly*, or being particularly sensible to cold on coming out of the bath, I always found myself less sensible to cold after bathing than before. I even observed repeatedly, and invariably, that the glow of health, and pleasing flow of spirits, which resulted from the full and free circulation of the blood which bathing had brought on, continued for many hours; and never was followed by any thing like that distressing languor which always succeeds to an artificial increase of circulation, and momentary flow of spirits, which are produced by stimulating medicines.

"I regularly found that I had a better appetite for my dinner on those days when I bathed, than on those when I did not bathe; and, also, that I had a better digestion, and better spirits, and was stronger to endure fatigue, and less sensible to cold in the afternoon and evening.

"As these favourable results appeared to be quite regular and constant, I was induced to proceed to a more decisive experiment. I now began to bathe every *second day*; and, finding all the advantageous effects which I had experienced from warm bathing still continued, I was encouraged to go one step further, and now began to bathe *every day*.

"This experiment was thought to be very hazardous by many persons at Harrowgate, and even by the physician, who did not much approve of my proceedings; but as no inconvenience of any kind appeared to result from it, and as I found myself growing stronger every day, and gaining fresh health, activity, and spirits, I continued the practice, and actually bathed *every day*, at two o'clock in the afternoon, for half an hour, in a bath at the temperature of 96° and 97° of Fahrenheit's scale, during *thirty-five days*.

"The salutary effects of this experiment were perfectly evident to all those who were present, and saw the progress of it; and the advantages I received from it have been permanent. The good state of health which I have since enjoyed, I attributed to it entirely."

Chap. VII treats of the *Hot* Bath, generally, the principles on which it acts, the affections of the system where it is calculated to do mischief, and those in which it may be expected to do good. The range it embraces is therefore extensive. Our author begins by a more detailed view than he had previously given, of the difference between the *hot* and the *warm* bath. He will be best understood, by being allowed to communicate his sentiments in his own words.

"By a *hot* bath, we are to understand that in which the water is of a heat exceeding 98° Fahr. It is decidedly stimulating, and, in its often violent and marked effects on the human body, contrasts strongly with the more pleasurable impressions produced by the warm bath. This contrast must convince us of the impropriety of including the two under a common head, and of confounding their different powers. The hot bath, by imparting to the system an

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excessive dose of caloric strongly excites the circulation, and proves a nervous irritant. As water, moreover, is much more dense than atmospheric air, the impression on the body immersed in it must be so much the more lively. In fact, we see that, in such a bath, the skin becomes red, the pulse is accelerated, the vessels are turgid, and respiration is more frequent; a copious sweat soon bathes the face: the arteries of the neck beat with more frequency; the mind becomes obtuse and inattentive; and even vertigo and apoplexy supervene. If the bath be prolonged to excess, so great will be the quantity of perspirable matter secreted, that Le Mounier, in a bath of 111° to 113° Fahr., lost, in the short space of eight minutes, a pound and a half of his weight; after which, he was obliged to abandon the bath on account of the violent symptoms which he experienced, especially about the head (*Mem. de l' Acad. des Sciences*, 1747.) Whether this loss was by cutaneous or pulmonary exhalation, or by both, it is not necessary to inquire: the practical deduction is the same. Even simple pediluvia, at a high degree of heat, sometimes produce the above effects to a considerable degree."

Dr. Bell gives us his own experience (and we deem it conclusive and of much interest) to prove two points; that the effects of the hot bath are decidedly stimulating; and that the bather, when thus excited, may expose himself with impunity to a colder medium. The reader will be well rewarded, by the knowledge he will acquire, for his trouble in perusing the Doctor's narrative, and the remarks which follow it on p. p. 265-6.

In specifying the diseases, in which the *hot* bath proves beneficial, our author observes:

"The cases to which this remedy is adapted are those of inertia, torpor, sluggish circulation, dry and cold skin with feebleness of muscular movement and a low grade of sensation. But here let us avoid confounding the state of the system naturally feeble and phlegmatic, or worn down by age and protracted disease, with the languor which follows acute inflammation or pressure of blood on the brain causing disinclination to motion, or in the lungs giving rise to slow stertorous breathing or asthmatic panting. In the first class of cases, the hot bath would be serviceable; in the latter prejudicial. In suddenly suspended animation from sun stroke, apoplexy, inhaling noxious gases, or swallowing narcotic poisons, we should do great mischief if we attempted to rouse the system by the stimulus of high heat. The cavities of the body, the brain and lungs, and the heart and liver, are gorged with blood, all the capillaries are unduly distended at this time. Cold air and cold water are therefore the appropriate remedies, which tend gradually to diminish the diameter of the capillaries: hot air or the hot bath would only augment the already too great vascular distension, and soon drive the parts into mortification. The same result would ensue if this bath were employed locally to a frozen limb, or generally to the body

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in a state of suspended animation from intense cold. The change from inert to perfect living matter must be accomplished very gradually: first cold water and snow are to be rubbed over the parts frozen, then cool and afterwards tepid water, and if the skin recover its sensibilities but there still prevail much general debility and languid circulation, the warm bath may be used; but in no instance is the hot one to be had recourse to.

A different practice, however, is called for, where there is no apoplectic stupor nor asphyxia; but where at the same time there is such a retardation of function with cold skin and diminished sensibility as to threaten a speedy extinction of life. Instances of this state are found in the bronchitis and pneumonia, of old persons, who have been greatly exposed to atmospheric vicissitudes, badly fed and imperfectly clad, and who may at the same time have been intemperate, or in whom the pneumonic attack came on during a fit of intoxication. The skin of such persons will be found dry and cold, the exhaled breath also preternaturally cool, the expression of the face haggard, mind wandering, senses obtuse. Sometimes immediate recourse is had in these cases to stimuli given internally, and on occasions with advantage; but considering the state of the stomachs of such patients, the effect of their prior habits, and the imperfect manner in which the rest of their system sympathizes with this organ, we cannot always say how far prompt general reaction may ensue on its stimulation, or an increase of the inflammation under which it may have previously laboured. It is here that we derive the best effect from the warm bath and frictions of the extremities; and the sensibility of this surface still failing to be restored, we have recourse to hot bath and frictions. The thermometer in hand, we gradually increase the temperature of the bath until it begins to display a marked operation on the skin, and through this part on the interal functions, by rousing sensibility and restoring the cutaneous and pulmonary transpiration. The inert state of the skin and its greater induration in old people together with their feebler powers of calorification, justify our employing in these maladies a bath of a higher heat than common. They who, in the congestions of the thoracic or abdominal viscera in this class of persons, should lay much stress on the relief to be obtained by the counter irritation of sinapisms and blisters, will find reason to be disappointed, if these applications be resorted to before the skin has partially recovered its sensibility. And even then their effects will not correspond with the anticipations formed; for in aged persons, irritation of one part of the cutaneous surface is not always, as in young and adult subjects, diffused by continuous sympathy over the whole, and a practitioner may have the mortification of seeing a blister cause inflammation and ulceration of portions of the extremities, with very little accompanying or prior excitement of the system at large."

This chapter closes with some judicious remarks on the use of the *hot* bath in *cholera infantum*, for a knowledge of which we must refer the reader to the work itself.

Chap. VIII, though marked with more variety than any other in the book, we do not deem the most important. It

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treats of *Vapour Baths*, under which head are included, the simple and medicated vapour from water, "sulphurous fumigations, vapours from alcohol and camphor, the inhalation of moist air, iodine inhalation, chlorine inhalation, and remarks on different kinds of apparatus for vapour bathing." On a minute and careful consideration of this chapter, we find it impracticable to furnish the reader, in the narrow limits to which we must confine ourselves, with a useful or even an intelligible view of the multifarious matter it contains. We shall therefore content ourselves with referring him to the work itself for the requisite knowledge of it. And though we repeat, that this is not the most important chapter in the book, it is sufficiently important to reward inquirers for an attentive examination of it.

Chap. IX treats of "Douches or Spout Baths," a mode of bathing practised chiefly in modern times. The principles on which they are applied, are the same with those by which other kinds of bathing are directed. Their advantage arises from their applicability to spots where alone they may be wanted. One circumscribed portion of the body may be too hot or too cold, and too intense or too feeble in its action, while the system generally is in a different or even an opposite condition. This is a fair case for the application of the douche. Is phrenitis or any other form of cephalic fever marked by excessive heat and excitement of the head, and defective heat and excitement of the upper and lower extremities, especially the latter? Let the douche of water at an icy temperature be applied to the head, and its operation will be salutary. If it does not alone remove the complaint, it will be a powerful auxillary to that effect. It is now known that in *erotomania* there is preternatural excitement and heat in the cerebellum. Hence the correct treatment consists in general blood letting, if the pulse require it, and the application of leeches, or cups, and the cold douche to the nape of the neck. The following paragraph is worthy of the serious attention of the reader.

"Seeing the dependence of violent convulsive movements of the muscular system on unduly excited brain and spinal marrow, we can have no hesitation

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in freely using the remedy in question, in convulsions not arising from a visible or evident irritant, such as of the gums and worms in young children, punctured wounds, or spiculi of bone and the like, in subjects of all ages. In these last cases, high excitement of the brain transmitted to the muscles is but sympathetic and in a manner temporary; and even though we should induce a powerful sedation of this organ, we but indispose it for the time being from receiving and transmitting with its customary promptitude the remoter irritation. We cannot destroy its character of a recipient of sensation and irritation, and it is purely in virtue of this office, and not owing to its own organic lesion, that it is unduly excited by injuries of other parts of sensitive circumference. In these cases the warm bath, as already indicated, will be our best remedy."

Is there, at any time, great cerebral excitement, with very cold extremities? While the *cold* douche is applied to the head, let the extremities receive the *warm* or *hot* one, and the effect will be salutary. Is there in yellow or any other form of gastric fever, great heat and irritation in the gastric region, with a failure of action and temperature in other parts of the body? The remedies will again be *cold* douching, where the action is excessive, and *hot* where it is deficient.

Douches of such temperature as suits the case may be given *internally* as well as externally. The following is our author's account of diseased affections likely to be benefitted by hot douching.

"In *tumefactions* of the viscera, without fever or pain, they may be freely applied over the affected part. In simple *physconia*, whether produced by enlargements of the liver or spleen, without phlogosis, the remedy often entirely relieves, especially if alternated with warm bathing. It is also highly proper, indeed necessary, to begin with the administration of some purgative medicine, and repeat the same after a few days of spout bathing. In that state of the body termed cachectic, the consequence of derangement in the stomach, liver, and spleen, among the residents of marshy countries, and distinguished by a pale or sallow complexion, puffy skin, swelled extremities, languor, and disinclination to motion of any kind, this kind of bath often acts like a charm. It may be used on different parts of the abdomen, or occasionally on the chest and along the back.

In *paralysis*, where we may hope that there is little alteration in the nervous structure of the brain or spinal marrow, and where the patient thus afflicted is not of a plethoric habit, nor liable to great determination of blood to the head, the hot douche applied alternately to the head nape of the neck, and along the spine, is often our only resource. In nervous exhaustion and debility, where torpidity has taken the place of *erethismus*, or morbid sensibility, this remedy is often of great avail.

In diseases of the *uterus*, depending on atony of that organ, as in *fluor albus*, unaccompanied by heat, *pruritus*, or tumescence of the affected parts, but sim-

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ply characterised by languid circulation, and pallid and cold skin, and universal languor, we have much to hope from the hot douche, either descending and applied to the os sacrum and over the hypogastric region, or ascending and directed to the vagina and os tincæ. *Chlorosis* might, under proper restrictions, be materially benefitted by the same remedy, applied in the same way,

Similar advice may be given in reference to the *mucous* and *muco-sanguineous* discharges, of a chronic nature, from the intestines, and to *hepatic* and *nephritic* colics. The douche is to be in such cases applied alternately to the abdomen or lumbar region, and in the form of enema.

In swelling of the joints, without redness and pain, whether rheumatic, gouty, or scrofulous, after the subsidence of fever and suitable cleansing of the digestive passages, no remedy can compete with the hot douche, perseveringly used for a length of time, and alternating with friction.

The use of the hot douche is contra-indicated, and ought to be abstained from, during the menstrual or hemorrhoidal discharges, and in all hemorrhages: or in persons prone or liable to sanguineous discharges, whether from a sanguineous temperament, plethoric habits, or other causes. In fine all diseases of an inflammatory character will be aggravated by the use of the hot douche."

Thus far we have dwelt chiefly on the practical matter presented by Dr. Bell, and have rarely found cause to differ from him in opinion. Nor have we expressed our concurrence with equivocation or reserve. Where our approbation has been without doubt, our declaration to that effect has been without qualification. We have neither spoken nor felt meagerly or grudgingly. Such is not our practice, in any case; and, in the present one, we cherish toward our author nothing but sentiments of entire justice and unmingled regard. The commendation we have felt authorized to bestow therefore has been peculiarly gratifying to us. But we can proceed, by virtue of the same authority no further; because we can commend only under the sanction of truth. It is our purpose now to advert to some of our author's speculative opinions, from which we are compelled to withhold our assent. In this part of our task, which shall not be protracted, because we mean to press toward our object by the shortest route, it is our intention to express ourselves with equal plainness. Where we entertain but *doubt*, we shall speak of it as doubt, but shall call *error*, should we chance to find any, by its proper name.

We cannot concur with Dr. Bell in his views of cutane-

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ous absorption, during the process of *warm*, *hot*, or *vapour* bathing. To pronounce his belief that the fulness or puffiness of the skin, in this case, depends in any degree on the fluid absorbed—to call such a belief we say *gratuitous*, is to speak gently of it. Not only does it want proof; the weight of testimony is against it. This appears clearly from the writings of those who have most judiciously experimented on the subject, from Currie of Liverpool, and Seguin, of Paris, to Rosseau, Dangerfield, Smith, and others, of Philadelphia. Nor have the views of those physicians been refuted by the subsequent experiments of Mussey, or by any others that have fallen under our notice. But this is not all that may be urged against our author's hypothesis. That notion does not merely present itself to us in the form of a conjecture, unsustained by tangible evidence. It also stands disconnected from any useful or necessary end. The cutaneous fulness referred to in proof of it, does not require for its appearance an absorption of water. It can take place without that process. The excitement of the bath is alone sufficient to produce it. That excitement fills the capillaries of the skin with blood, as the increased redness of the surface demonstrates. *Ubi irritatio, ibi fluxus*, is as true in physiology, as it is in mathematics, that the *whole is greater than a part.* The warmth therefore, we repeat, excites or irritates the skin, and, by a law of organic action, the blood is thrown into it, giving to it at once increased thickness and a higher colour. Is it not a leading object of the warm bath to produce this centrifugal movement of the blood?—to draw that fluid from interior parts, where it superabounds, to superficial ones, where it is defective, and thus equalize circulation? Unquestionably it is; a truth which our author has fully recognized. Hence the warm, hot, and vapour baths are recommended by him, not when the skin is warm, moist, and filled with blood, but when it is cold, dry, and bloodless. He does not wish to surcharge the skin of his patients with the liquid of the bath. That could render them no conceivable service. It would in no degree tend to restore the deranged balance

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of circulation and vital action. On the contrary, it would prevent such restoration; because the distension of the absorbents of the skin by water, would occupy space in that tissue and obstruct the flow of the blood into it through the circulatory channels. Has the bath-water been discovered in the cutaneous absorbents? We answer, it has not. Its entrance into them therefore is matter of conjecture—nothing more. Were it actually there, it would, in some way, manifest itself. It would at least moderate the deep crimson of the skin, produced by the bath, communicating to it somewhat of its own *want* of colour. But the accumulation of blood in the skin is obvious. Every vessel is distended and glowing with it. Capillaries too small to admit red globules, in their ordinary condition, now expand and receive them. In this outward flux of blood there is nothing imaginary or conjectural. All is real and open to the senses. And that it is alone sufficient to swell the skin, without any aid from absorption, appears from the effect of the warm *air-bath*, where nothing is pretended to be absorbed. Under that process, the skin becomes as thick and puffy and moist and red, as under the warm or hot water or vapour bath. Of every erectile process the same may be affirmed. The capillaries of the part become distended with blood, and the part itself is increased in bulk, without the aid of absorption. This is the case with the stomach during digestion, with the lips under the influence of pleasurable kissing, and with every gland and secreting surface, the skin not excepted, when it is actively engaged in its peculiar function. There is indeed ground to suspect, that, under such circumstances, the process of absorption is, for the time, checked, if not suspended. An active condition of it would seem calculated to prevent the other more necessary state of the part. From any thing we know of vital organic action, we are scarcely authorized to believe, that two different modes of it can go on with increased activity, in the *same* tissue at the *same moment*. One of them would seem likely to impede the other. They may go on *alternately*, but not, we think, *syn-*

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chronously. And such is the general order of the animal economy. In topical inflammation, absorption in the part is suspended. But wen inflammation has subsided, absorption begins again, with increased activity, to remove the superfluous matter that has been deposited. As relates to the effects of the warm bath, the same appears to be true. During the period of cutaneous excitement, the sanguineous capillaries of the part are alone in high action. But when the excitement declines the absorbing capillaries begin to labour, in their turn, to aid in restoring the part to its natural condition. That these two sets of capillaries, being antagonists to each other, act with their greatest vigour, under different and even opposite circumstances, is matter of notoriety. While cold promotes absorption, it is unfavourable to the natural action of the red capillaries. Of pressure the same is especially true. While it excites the absorbents to their highest action, it entirely prevents nutrition, which is the work of the other class of capillaries. Other examples to the same effect might be cited, did our views require it, and circumstances permit.

Warm bathing then is essentially a revulsive process, throwing its action on the sanguineous capillaries generally, probably through the medium of the nerves and brain. With absorption it has no *immediate* concern. If it *excites* that process at all, which is probably the case, it does it indirectly, in like manner as it acts indirectly on internal organs. It does it, we mean, by increasing the general health and natural action of the system. We repeat, that one principal end for which physicians resort to it is, to equalize excitement and circulation, a purpose to which absorption can in no wise contribute.

On this point however let us not be misunderstood. We do not deny that some liquid may be taken up by the cutaneous absorbents, in the process of bathing. But we feel confident that the quantity is very small—so small as to have no appreciable influence in the general effect produced. In *extra-cuticular* absorption we dis-believe entirely. The cuti-

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cle covers the mouths of the absorbents, and prevents any fluid from entering them, until it has passed, by maceration, through itself. But such passage we apprehend is sometimes made by the water of a bath, which thus gains admission to the openings of the absorbents. Some of it therefore, may be taken up, by them; but the portion we believe to be too small, to have any cognizable influence either for good or for evil. The human system can be neither sickened, restored to health, nor nourished by cutaneous absorption. That process therefore takes no part in the good done by any kind of bathing. The whole is the result of a salutary impression made on the skin, and communicated to the other parts of the system, by immediate sympathy, or through the influence of the nerves and brain.

We again believe Dr. Bell to be in an error in the views he entertains respecting the nature and mode of action of cold, and the class it belongs to, as an article of materia medica. He considers it *essentially* and *directly* a *sedative*, and incapable therefore of *stimulating* any of the organs or tissues of the body. And he seems anxious to have it understood that this *is* his opinion, and rarely omits a fair and immediate, or even a remote opportunity, of saying so.

As we mean, in our brief consideration of this subject, to avoid abstractions and subtilties, we shall waive all remarks on the metaphysics of cold. The meaning of the term is as well understood, as we could render it by any interpretation we could give. We shall speak of it as a temperature below that of the human body; and such is the signification usually attached to it.

That our subsequent remarks may be the more readily understood, we shall premise a few general propositions, each of which is admitted as an undisputed truth.

Although life itself is not the result of stimulation, every open manifestation of it is. In simpler language, every vital action is the product of a stimulus, operating in some way on living matter. Such matter entirely excluded from stimuli ceases to act, as certainly and speedily, as if it were dead.

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Nor can aught but a stimulus *change* any kind of existing vital action. Does one form of vital action pass into another? A new kind of stimulation is the cause.

Vital action consists in *motion*, especially *contractile* motion and *sensation*. Under the head of "sensation" is here included the action of the intellectual portion of the brain, as well as of its sensitive portion.

Whatever produces in living matter, then, motion or sensation or both, is a stimulus, and must be so denominated. No other kind of agent, did any such exist, can produce either. The action moreover must be, in every case, *primitive* and *direct*, not secondary or indirect. It will appear hereafter, that a principal source of our author's mistakes, on the present subject, is, his neglecting to look for *primary* action, and directing his attention almost exclusively to that which is *secondary*.

A real sedative, if such a thing have being, is that which *directly*, and *in* all *cases*, diminishes, suspends, or annihilates vital action of every description. Merely to alter vital action, except in degree, does not belong to a sedative. Nor must there be any thing indirect in its mode of operation—we should rather say, its mode of non-operation; for it belongs entirely to the class of *negatives*. The *sedation* must be *direct* and *immediate*, else it is the result of a stimulus; for it will appear hereafter, that a stimulus can produce sedation. But it must do it indirectly.

If, according to these laws, cold produces, in living matter, immediate and direct sedation or *inaction*, it is a sedative. But if not, it belongs to another class of agents, and must receive another name. Let the trial be made, and the issue noted. It will be borne in mind, that *perceptible* contraction, and sensation, being the two most distinctly cognizable modes of vital action, are those respecting whose production we are about to inquire. If cold be found to give rise to either or both, it is necessarily a stimulus. If we do not call to our aid, in this discussion, other modifications of action, it is not because they are wanting; but because the testimony they offer is less striking.

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Cold in any form applied to the scrotum and penis produces in each a visible and strong *contraction*, pressing the blood out of them, and greatly diminishing their size. No physiologist will venture to call this a state of inaction or lifeless *collapse* of those organs. In so doing, he would expose his want of knowledge. It is action as positive and as truly contractile, as that of a muscle, in flexing a limb. If the parts were excised, and the blood suffered to flow out of them, they would be then in a state of real collapse. Yet their bulk would be much less diminished, than it is by the application of cold to them, when in a living and healthy condition. Nor can the reason of this be concealed from any one, who seeks it. Vital contraction alone can produce the striking diminution. Lifeless collapse cannot. But the former is excited by the application of cold; while the latter only follows excision. In this instance, then cold acts palpably the part of a stimulus. In further proof of this, let the scrotum and penis be exposed to a temperature so high as to be somewhat painful to them; and they will in that case also contract, press the blood from their vessels, and lose their usual size. Why? because heat stimulates them to the process. But this contraction will be of short duration, the parts returning speedily to their natural size. In each case, then, a temperature differing greatly from their own, (in one instance above, and in the other below it) is equally stimulating.

Let the heart of an animal, stunned by a blow, be exsected, before it has ceased to palpitate, and placed on a table. Have in readiness three cups of water of different temperatures; one at 125° of Fahrenheit, another at 95° (the temperature of the exsected organ,) and the third at 40°. Let fall on the heart, gently and successively, drops of water from the three cups, and mark the result. as soon as the water at 125° and that at 40° shall touch the organ, it will contract briskly, while that at 95° will excite in it no motion; or, if any, one scarcely perceptible. Need we mention the reason of this? It is, that the hot and cold water stimulate equally, while that which is tepid does not stimulate at all.

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This experiment is alone conclusive against the notion, that cold is a *direct* sedative. On that hypothesis it is inexplicable.

A female has fainted, under the operation of blood-letting, or the influence of a fright, and her skin is cold and pale. Nothing revives her so certainly and immediately, as the aspersion of cold water on her face, neck, and breast; and the colder the fluid, the more powerful is its action. The same end is attained, but not so speedily, by the action of volatiles on the olfactory nerves. But the latter is a stimulant. How then can the former be the reverse, proving, as it does, identical in its action?

Who does not know that the action of cold on a recent wound, inflamed eyes, or any other form of external inflammation, irritates and aggravates the complaint? The effect of *high heat* on the part *is the same.* But moderate warmth is salutary in its action. One of the best lotions in opthalmia, is *tepid water;* while very hot and very cold water are alike injurious. It is a knowledge of these facts that induces agriculturists to select moderate weather for the time of castrating and spaying their domestic animals. They never perform the operation either in summer or winter. Spring and autumn are the periods they choose. But they are purely practical men, and have no theory to support on the subject.

In an atmosphere at 60° of Fahrenheit, a marmot or a hamster is reduced to a torpid state, with its temperature at 80°. On being removed to an atmosphere at 26°, it is immediately reanimated, and its temperature rises to 93°. This is no imaginary case. The experiment, with many other similar ones, has been performed, and, in every instance, with the same issue. If cold be a direct sedative, how is it to be explained? The temperature of the animal, instead of being lowered, by the influence of a cold atmosphere, is greatly elevated. Why? because the stimulus of the cold elevates its vital action. No other reason can be assigned, and none other is necessary.

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When severe cold is applied for a time to the surface of the body, the whole skin contracts, as appears from its hardness and anserine character, and its capillaries also contract, and empty themselves of blood, as is manifest from the general paleness that prevails. Indeed if the cold be long continued, the capillaries not only of the skin, but of all the soft parts covering the extremities, as well as those of the ears and nose, contract to such an extent, as to become bloodless. Hence the falling off of rings, which had been previously tight on account of the diminished size of the fingers, the thinness and semi-transparency of the ears, and the general diminution and peakedness of the nose. In extreme instances even the lips become thin and bloodless, from the same cause. The most extraordinary and instructive case of this kind, with which we are acquainted, is that of Dr. Solander, when long exposed to a snow-storm, about half a century ago, on the mountains of Terra del Fuego. Such was the general shrinking of his person, that his clothes, which had fitted him neatly, became quite loose, and his gloves fell off his hands, and his shoes off his feet. The narrative of his adventure and sufferings, prepared by the Doctor himself, was published in the Transactions of the Royal Society of London, about the year 1783.

What, we ask, was the cause of this wonderful shrinking of the person and extremities? Will any one, answer, *collapse—inaction—a mere torpor of the capillaries?* That, we reply, is a manifest error. For such an effect to arise from such a cause, is absolutely impossible. The very conception to that effect betrays an entire inattention to the subject, or a singular misunderstanding of it.

Collapse and inaction, if they have any definite meaning, mean an entire *want of action*—a condition tantamount to real death. But could such a condition have produced in Dr. Solander the striking diminution of size referred to? It certainly could not, nor any thing approaching it. Instead of being long exposed to intense cold, suppose the Doctor had suddenly lost his head, by the stroke of a sabre. Real

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collapse or inaction would then have been complete. Added to this, much blood would have been lost, and the vessels which had contained it so far emptied. Still the diminution in size of the person and extremities would have been very inconsiderable. It would have been but slightly perceptible to the strictest inspection. Even an attempt, by mechanical pressure, to force the blood from the vessels would have produced but little if any diminution. Could mere vascular collapse prove the cause of such a loss of size, every dead body would be thus reduced; because in every one collapse is perfect. But no such reduction of bulk appears. Nor is mere collapse sufficient to account for the anserine roughness of the skin. Were it so, the skin of every corpse would be in that condition. But the fact is otherwise. In most dead bodies the skin is smooth. In many it has even a polished appearance. Without vital action, as the cause of its motion, the blood can no more pass from the surface to the centre of the body, than it can from the centre to the surface. In the latter case the heart contracts vitally; in the former, the capillaries.

To what then are the diminution in size and the roughness of the surface, produced by cold, to be attributed? We answer confidently to a strong contraction of the superficial capillaries emptying themselves of blood, and to a similar contraction of the fibres of the skin, rendering that membrane thinner, harder, and tighter, and making it prominent where it surrounds the roots of the hair. On no other ground, with which we are acquainted, can the phenomena we are considering be explained; and the explanation given appears to us sufficient.

In all the foregoing instances, real, and, in some of them, even powerful vital action is excited by *cold*, which, according to the fundamental propositions laid down, is therefore a stimulus. But we have not yet done with the subject.

There is yet another form of vital action, which cold is peculiarly powerful in exciting. We allude to *sensation*. On this point no difference of opinion can exist. Every one

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who has walked out, in a frosty morning, without gloves, dressed in thin shoes and thread-stockings, and with a keen northwest wind chafing his face and ears, can testifiy to the *sensation* produced by *cold.* And if he thinks about a *sedative,* and knows what it means, he will be deeply surprised that such a name has ever been attached to such an agent. Who that has suffered from a carious tooth, or an inflammation of the membrane around its root, is not familiar with the exquisite pain often produced in it, by a mouthful of cold water, or a bit of ice or snow brought accidentally into contact with it? Yet pain is a form of vital action, and cannot therefore be the product of a sedative. It is the direct result of stimulation. On this point we speak on the best authority—experience. At this moment the periosteum of one of our teeth is slightly inflamed, and heat and cold pain it precisely alike. Had we no other source of information but the sensation produced in the inflamed membrane, we could not tell the difference between a mouthful of cold water, and one of coffee. In kind and intensity, the feeling produced by each is identical. A mouthful of tepid water is soothing and pleasant, and removes alike the pain excited by heat and cold.

When at college we were concerned in the following experiment. The weather being sultry, two of our companions were lying asleep, on a mattress. In that spirit of wantonness which young men often indulge toward each other, under such circumstances, a large iron key, heated to about 150° of Fahrenheit, was introduced under the pantaloons of one of the sleepers, and a lump of ice under those of the other. They both awoke at the same instant, and commenced the pursuit of the disturbers of their repose, who fled for safety. We shall only inquire, can a sedative awaken from the torpor of sleep? In spite of theory, common sense replies in the negative.

We are all accustomed to speak familiarly of the *shock* of the cold bath—Dr. Bell in common with others. The term is significant, and means *strong* and *vivid sensation.* We leave

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to the Doctor, or any other person who thinks with him, to interpret, consistently with correct construction, the expression, *a sedative shock.* We confess ourselves unequal to the task. Were it not that punning is no favourite art of ours, and that we have almost resolved never to try it, we should be tempted to say, that the phrase is a *shocking* solecism in language.

About the middle of the eighteenth century, a company of French Academicians, engaged in an astronomical enterprise, passed a winter within the North Polar Circle. The account they gave of their tour and winter-residence is full of interest and instruction. This is peculiarly true, as relates to the effects of cold. The air, far below Zero, swept over their faces with the keenness of edge-tools. The smarting it occasioned was cutting and painful. Nor was this all. Fire-arms, and other metallic instruments, that were exposed to it, for a few hours, "*burnt and blistered*" the hand that grasped them, as if they had been red-hot.

But we need not travel to the Arctic Circle, to witness this powerful effect of cold. Every chemist can exhibit it in his laboratory. He has only to render quicksilver solid, by a freezing mixture, and the work is done. The metal, thus deprived of its caloric of fluidity, cannot be held in the hand, for an instant, on account of the intense pain and burning it occasions. It produces vesication as suddenly, as molten silver or glowing iron. In proof of all this, and as conclusive evidence that cold stimulates, let the following experiment be made. Have prepared a piece of frozen quicksilver and another of red-hot iron, of the same size. Blindfold a person and place in one of his hands the frozen, and in the other the heated metal. In each hand the same painful sense of burning will be produced, and the irritating substance will be dropt from each, with equal suddenness. This is no fancied experiment. We have seen it performed, with the result here stated. The account given by Captain Parry, of the effects of cold on those under his command, in his voyage to the northern sea, shows it to be a direct and powerful

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stimulant. In one instance it so deranged the intellects of two young officers, that they were at first suspected of intoxication.

Shall we be told that, in the experiment here cited, notwithstanding the identity of the effect produced, the modes of operation of the two metals are altogether different? that the iron communicates caloric to the hand, while the quicksilver draws it from it? We reply, that our present inquiry is not after causes and modes of operating, but after facts and results. And we perceive the result, in each hand alike, to be high stimulation. Yet we must be permitted to observe, that where we find for ever a sameness of effect, it savours much more of sophistry, than of philosophy or sound logic, to search with prying curiosity for a difference of cause. In the case we are considering, caloric is the only agent concerned. Provided therefore it produces the same immediate result, no matter whether it does it by passing into the hand or out of it. In either case the primary effect is directly stimulating.

Shall we be told again, that cold diminishes greatly the force of action of the heart and arteries? We know it; but we also know, that the whole human body is not made up of heart and arteries. Nor does that part of the body constitute the only test of stimulation. A much higher and better test is found in the nerves and brain. And that they, as the master portion of man, pronounce cold a direct stimulant, has been already, we persuade ourselves, abundantly proved. They *feel* cold keenly; and that is enough. To speak of *feeling a sedative*, would be an abuse of terms. Feeling is a vital action, which nothing but a stimulus can excite.

Are we once more asked, how it is that cold, if a stimulus, can weaken the action of the circulatory system? We reply, on the same ground that many other stimulants do the same thing. Injuring the *brain*, by its deleterious irritation through the cutaneous nerves, it disqualifies that organ for doing its duty to the *heart*, which, being thus deprived of the requisite amount of cerebral influence, is itself enfeebled,

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and its function languishes. No one can deny the stimulating quality of tartarized antimony, which, mixed in paste or an unguent, or even in water, is capable of irritating and inflaming the skin. Nor does its action on the stomach prove less clearly its stimulating power. It has, at times, produced inflammation in that organ also. Yet, when swallowed in moderate doses, it greatly enfeebles the action of the heart, and is administered with a view to that effect. Of foxglove the same is true. It can be demonstrated by experiment, that that plant will stimulate and even inflame any sensitive or very irritable part, to which it is immediately applied; and yet when swallowed in certain doses, it reduces very strikingly the force and frequency of the pulse. In fact, it is impossible to name a stimulating article of great power, of which the same may not be affirmed. It may be applied to the human body in such a way, as to weaken the circulation. Is the article ardent spirits? We once saw three pints of gin swallowed rapidly, in copious draughts, on a wager, render the pulse almost imperceptible, in a few minutes, and in a few more, destroy life. Is it caloric? A very severe and extensive burn, destroying the skin over a large portion of the body, diminishes the pulse, in force and volume, as suddenly and strikingly as the most intense cold, and proves fatal in a shorter time. Are we inquired of, how ardent spirits and caloric, two of the most stimulating substances in nature, thus enfeeble the action of the heart? We answer, *indirectly*, or by sympathy. By the severe shock they give the brain, they so derange that organ, that its function fails, and in consequence of this, all other parts of the system necessarily suffer. Of cold the same is true. It excessively and deleteriously stimulates the brain, deranges or suspends its functions, and thus the individual suffers or dies. Cold then, like every other powerful agent, is a direct stimulant, and an indirect sedative. If it must be classed with sedatives, because it lowers the tone and action of the heart, so must every other potent medicine. Thus will all medicinal articles be classed as sedatives; whereas in fact they

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are all stimulants. We do not say that cold is a stimulus identical with alcohol. All stimulants differ from one another, each of them possessing the character of a specific. But we do say that cold and alcohol and all other stimulants may be made to produce organic debility, accompanied by a corresponding degree of inaction, on the same principles.

The chief reason why physicians commit such mistakes, respecting sedation and stimulation, is, that they are too local and exclusive in their views. They look at insulated points, instead of examining the whole ground before them. They fix their attention on the circulatory action alone; and if that be enfeebled, they proclaim the agent producing the effect a *direct* sedative, although its action is obviously *indirect* and circuitious; and although it plainly *stimulates* the part, to which it is immediately applied. Cold does not act *directly* on the heart, in any way. It reaches it circuitously, through the skin, nerves, and *brain*. The latter, we repeat, it injures, by deleteriously irritating it, and by that means, produces the sedation which follows.

There is yet another ground, on which cold debilitates the system. It is a powerful evacuant. It depletes the body of caloric, as obviously as venesection does of blood. Nor is a certain amount of caloric less essential than blood, to healthy and vigorous vital action. To its rapid and copious evacuation, then, is much of the debilitating effect of intense cold to be attributed. Abstract a large quantity of blood, by opening a vein, and the result is a corresponding degree of debilitation. Why? Because blood is essential to vital strength. But caloric, we say, is equally so. Evacuate it then, in an undue quantity, and weakness ensues. In this view of the subject there is nothing visionary. It is as well substantiated by facts, as any tenet or principle in physiology. Cold water applied to the epigastric region, when the stomach is inflamed, and the skin of the abdomen preternaturally hot, is as literally an evacuant, as leeches or cups. But leeches and cups *stimulate* the part, to which they are applied, and produce sedation *indirectly*. So does cold.

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In saying that the human system is debilitated by the evacuation of caloric, we have used loose, every-day language, rather than such as is philosophical and correct. It is not the *loss* of caloric that debilitates, but the *exertion* the system makes to prevent or restore it. This exertion expends an excessive amount of the vital principle, whose presence confers strength, and whose loss withdraws it. The caloric which gives rise to animal temperature is as much the product of vital organic action, as secretion or nutrition. In fact it may be called a *secreted* matter, as it often has been, without impropriety. The secretion of it therefore is one of the necessary labours of the system, and that labour will be the greater, the larger the amount of caloric is, that is to be furnished. But the effect of labour in excess, is to exhaust and enfeeble. Hence, when cold carries off caloric with great rapidity, the vital principle becomes exhausted, in the effort of the system to restore it; and thence arises the feebleness that ensues. The same is true, as relates to the debility produced by excessive heat. It results, not from an undue accumulation of caloric, in the system, nor yet from the impression that matter makes on the skin, from without, but from an excessive effort, on the part of the vital principle, to guard against the influence of a high temperature—to prevent we mean, the matter of heat from entering the system. In like manner, it is the *exertion* of the muscles of voluntary motion that produces fatigue, under excessive exercise, not any stimulating impression they sustain. Of every other form of exhaustion the same may be affirmed.

One instance more, where obvious stimulation weakens the action of the heart and arteries. It is in the case of *fear*. That is called a sedative passion. Why? Because it diminishes the force of the heart, and the volume of the pulse. But does it not consist essentially in a highly excited condition of a certain portion of the brain—the organ of Cautiousness? Dr. Bell is too much of a Phrenologist not to answer affirmatively. He knows that in hypochondriasis, which is a sort of madness from fear, while the action of the heart is

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feeble, the organ of Cautiousness is often in a state closely bordering on subacute inflammation—sometimes, perhaps, it reaches that state. And he further knows, that while terror is the result of a highly stimulated brain, it so debilitates the action of the heart, as to render the pulse at times imperceptible, aud produce syncope. Like cold, therefore, it is directly a stimulant, and indirectly a sedative. In other words; it is stimulating in its nature and primitive action, but sedative in some of its remote effects.

But we must close this article. In doing so, we earnestly recommend to public attention the volume we have been examining, as a work of uncommon merit, and highly creditable to its distinguished author. Had we not felt the force of the writer, we should have taken less pains to refute his errors. It is the strong only, whose productions can mislead and do mischief. C.

ART. V.—*Report of the Commission appointed by the Sanitary Board of the City Councils, to visit Canada, for the Investigation of the Epidemic Cholera, Prevailing in Montreal and Quebec.* By SAMUEL JACKSON, M. D. CHARLES MEIGS, M. D. RICHARD HARLAN, M. D. Philadelphia, 1832. pp. 37.

CHOLERA continues to be a subject of engrossing interest with the American public. Since the last number of this work went to press, conjecture has given place to certainty, and predictions have become history in relation to the disease. It has reached the United States, and invaded her principal eastern cities. Whither, in future, it will direct its course, it is impossible to foresee. But since a deep anxiety is felt, in the West, in relation to our liability to its in-

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cursions, it is proposed to devote a few pages of our present number to the examination of the subject under the new lights which have been thrown upon the disease by its progress in this country.

Cholera was announced in Montreal on the 10th of June last, and was reported to have been introduced by the Irish emigrants who arrived about that time. Up to the 18th of June, there had been in that city, 1635 cases, and 312 deaths; and in 24 hours afterwards, 431 new cases, and 82 deaths. In Quebec, where it appeared about the same, the number admitted into the two hospitals in 14 days, ending Thursday, the 21st of June, was 609; of whom 361 had died. An equal number of cases, it is supposed, had occurred in private houses. The table of burials by Choler in that city to the 18th of July gave a total of 1622; but it is probable that some were from other diseases. Including the non-resident population, the number of deaths, up to that period, was about one in twenty. As has been remarked of the disease elsewhere, the first cases of it were most malignant. Of those attacked in Montreal during the first five days of its prevalence, few it is reported, lived longer than six hours from the time when first taken. Up to the 18th of June, but few of the natives had died, and not many English, Scotch or American residents. The deaths from the beginning were principally among the resident French Canadians. Of the Canadians and the recent emigrants, the proportion was four of the former, to one of the latter. The disease was decidedly more prevalent at Montreal than at Quebec. The streets of the former place are also more filthy. By the 22d of June, the disease had begun to subside in Montreal, having attained its acme in the short space of ten days. The reports of that period state the number of cases on the 22d to have been 109, and the burials 52. On the 23d, the number of cases was 83, the deaths, 31. On the 30th, the cases were 32, the deaths 22. The malady seemed at its height from the 17th to the 19th inclusive, during which time 1072 cases occurred, and 379 deaths. But,

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subsiding thus rapidly, it did not entirely disappear; but continued to hang upon the skirts of these devoted cities, returning again with every unfavourable change in the weather to carry off new victims. From the breaking out of the disease in Montreal, to the 13th of July, or a little more than a month, 3,716 cases had occurred, of which 1,210 were fatal. At first, and throughout, it confined itself chiefly to the dissipated and the profligate, but it occasionally mounted up to the higher ranks of society and destroyed many valuable citizens. Judges, physicians, merchants and advocates wre numbered among its victims. Of 350 members of the Temperance Society in Montreal, but one was reported to have died of it. No instance of mortality occurred among the black population of that city. The disease made its appearance in the smaller towns in Canada, but was decidedly less malignant.

In relation to the introduction of the pestilence into this country, the physicians who visited Canada for the purpose of studying its true character declare, that it was *not* imported with the Irish emigrants on the 10th, but had appeared in Montreal at least *six weeks previously.* They also state, that it appeared, according to the account of Canadian physicians, "like a shower of hail," simultaneously all over the suburbs of the city, without any possible communication between the subjects of its attacks, and that the physicians of Montreal regarded the cholera with which they had to contend, as differing in no respect from the epidemic cholera, of the United States and the Canadas, save that it is now epidemic. It is added, that the same organs are affected, and in the same manner, and the same phenomena present. That the disease broke out again on the landing of the emigrants, and became much more malignant, is not remarkable when all the circumstances attending that event are considered. What else could be expected to arise from 20,000 miserable beings, covered with filth, suddenly transported from a cool climate and a refreshing sea atmosphere, into sheds at the foot of high ground, exposed to a heat of more than ninety degrees?

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It is worthy of note, that the number of emigrants arrived at Quebec from the opening of the navigation to the 8th of August was 43,921. Their situation on landing was often the most deplorable that could be imagined. They were generally poor and destitute. They could not obtain comfortable lodgings, but sheltered themselves as they might in temporary booths, which barely afforded them prot ection in clement weather. Thus exposed to every change, to the damp night air, to the effluvia and filth arising from great numbers of bodies crowded into the same apartments, they were in lack of many of the comforts of life, unable to obtain employment, and subjected to every depressing feeling which such a state of things might be expected to inspire. Under such circumstances, the fatality could hardly have been less. It was predicted that the disease would not be less destructive in its march through the cities of the United States. Has this prediction been verified? On the contrary, has not the opposite and long cherished opinion—that among the well-fed robust and comfortable population of our country, the pestilence would lose many of its terrors,—been fully sustained by its recent progress?

After ravaging the cities of Canada for a month, the epidemic at last broke out in New York—not in its towns bordering upon the St. Lawrence, but at once in its great commercial emporium, and at a time too, it is worthy of remark, when the Legislature of the state, and her municipal authorities were enacting laws against its importation. It is farther worthy of remark, that the first subjects of the disease were the inmates of a prison, who were cut off from society, and consequently, from all intercouse with infected persons and places. The panic was excessive, and it is computed that seventy thousand of the inhabitants fled from their homes. The epidemic spread slowly at first. During the first week, ending July 7th, 56 deaths took place from the disease; during the second, 336; the third, 761; the fourth, 806; when it began to decline. In all the month of July, the number of deaths in the city,

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from malignant cholera was reported to be 2085. If to this those are added who perished out of the city, the total perhaps would not fall short of two thousand eight hundred, in the compass of a single month, or more than a seventy fifth part of the whole population.* The whole number of deaths on the 4th of July was four. On the 5th, 12. On the 18th, it had only risen to 82. On the 21st, or three weeks after its appearance, it had reached its climax, when 104 perished in a day. By the 30th it had fallen to 39 a day. It then declined gradually. On the 6th of August 37 deaths were reported from cholera. And as late as the 27th of that month, 30 burials of the disease are reported by the New York Board of Health.

In Montreal, we have seen, that the disease attained its maximum in ten days; whereas in New York it was more than three weeks in doing so. When at its height in the former place, 1072 cases, and 379 deaths occurred in three days, in a population not exceeding twenty-five thousand. In New York during the three days when it was worst, in a population, making allowance for absentees, of at least 150,000, but 778 cases, and 295 deaths occurred.

As in Montreal and elsewhere, the brunt of the disease was borne by the profligate, the destitute, and the intemperate. Where persons of a different character died, it was generally from imprudence in eating unwholesome food, from exhaustion attending over-exertion, from exposure to the night air, to rain, or some such cause. Such cases are merely exceptions to the general rule, than which none can be better established. The nine physicians who died, are said to have worn themselves out by their unremitted attentions to the sick. Alderman Smith had endured much fatigue in the sun during the day, and in addition to this, made a hearty supper on oysters at 11 o'clock at night.

Albany, Brooklyn, Utica and most of the other towns in New York experienced more or less of the epidemic. A few

* As reported in the hospitals and in private practice, the number of cases for this period was 3731, the number of deaths, 1629. The interments amounted to 2085, as stated above.

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cases also occurred in Trenton, New Haven and many other places; but the malignity of the disease became evidently less when it appeared in towns, or in the country, where the population was sparse, and comparatively free from the gross dissipation incident to crowded cities. Alarm was at one time excited by the appearance of cases in New Haven, which were supposed to have been brought from New York; but the disease did not spread.

Among the greatest sufferers by the disease were the soldiers under the command of Gen. Scott, who were marching against the forces of the Chief, Black Hawk. Hundreds of men dropped down and died in a few days. Of 1000 troops who left New York not one half, it is reported, reached their place of destination. Many, terrified by the distemper, deserted the ranks, and perished alone on the road side. The disease ran its course with fearful rapidity, carrying its victims off in a few hours. One surgeon and one officer were among the number who died. When it began to abate, it subsided as rapidly as it had risen; and in a few days it had entirely disappeared from the army. It should be remarked, that notwithstanding its aggravated malignity, and the number of men who dispersed and died in the settlements, it was not spread among the people, nor communicated to a single individual out of the army.

About the last of July the epidemic appeared in Philadelphia. The city authorities had invested the city with no sanitary cordons. The intercourse between that city and New York was not restricted. Her Faculty had early taken the true ground, and their efforts had enlightened their fellow-citizens. No panic was produced by the irruption of the disease. No more persons than usual left their homes. A calm resignation seemed to pervade society, and a full confidence was felt, that the cleanliness and good order of the city would insure that comparative immunity which had been promised. On the 29th of July six cases and one death were reported. On the 30th, it had increased to 15 cases, and 7 deaths; August 3d, 35 cases, 14 deaths. On the 6th, the

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cases were 176; the deaths 71. On the 9th, cases 254; deaths 58; 10th, cases 141, deaths 39. During the week, beginning July 28th, and ending 4th August, 84 deaths occurred of malignant Cholera. In the week ending August 11th, 370 deaths were reported. Of these, 335 were adults, and 35 children. It may be remarked, that in the same time 35 children died of cholera infantum. From the 11th to the 18th of the month, the deaths from Cholera were 282, averaging 42 a day; of which 238 were adults, and 44 children. In the same period, the number of deaths from cholera infantum was 51. Thus early, we perceive, the disease was on the decline, the number of deaths this week being 82 less than the preceding. During the 4th week, beginning August 18th, and ending the 25th, the deaths among adults from Cholera were 67, among children, 42; total 109; a declension of 173 since the preceding week. In the three days when it was most fatal, the number of cases reported was 426, and the number of deaths 190. Taking the three *highest* days, which were the 6th, 7th and 9th, the cases were 466, the deaths 202; and the total for the month from the 28th of July, to the 28th of August, 858—an astonishing falling off from the mortality of Montreal, or even of New York.

By the 28th of August it had so far abated, that no person, it was said, would have supposed, from external appearances in the city, that there existed any particular cause of alarm,—any the slightest degree or idea of pestilence. On the day before the number of reported cases was 21, the deaths only 7.

This mildness of the epidemic in Philadelphia was what had been all along promised that city. If it had turned out otherwise, the cause for alarm in other portions of our country, had been much greater. As it is, we may learn that general cleanliness, and comfort—composure and firmness of mind—abstinence from unwholesome food and intoxicating drinks, and suitable care in guarding the body against the effects of sudden changes in the atmosphere, furnish an almost sure protection against the pestilence.

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In the western progress of the disease, Baltimore was the next city that felt its influence. But as in Philadelphia, the people were prepared for its incursion, and it excited no panic. Its ravages have not been such as to interrupt business, or excite serious alarm. On the 23d of August, several days after it had made its appearance, the deaths from it in the city amounted to but 29, of which 19 were among the colored population. Ten deaths occurred on the 24th, 5 whites and 5 colored. On the 25th, 14 deaths; 5 whites, 9 colored. In one week 78 colored persons were buried in the city, nearly all the victims of cholera; and what is remarkable, *seventy five* of these were *free*, and but *three slaves*. Here the disease for the first time manifested a partiality for the black population. In Montreal we have seen that they are singularly exempt. In Norfolk, where it appeared almost contemporaneously with Baltimore, it exhibited the same unexpected partiality. Its first attacks were confined to negroes; and for several days no others suffered, except a few white men who were intemperate. Up to the 25th of August but three cases of cholera had been reported in Boston, all of which had proved fatal. The disease did not appear like spreading.

Such is a brief history of spasmodic cholera, as it has appeared in our hemisphere. It is interesting to compare its fatality in the principal cities where it has prevailed. In Montreal, with a population of 25,000, the deaths, up to the 13th of July, were 1,210; in New York, where the population is 200,000, the number from the commencement of the disease, to the 29th of August, was 2,683; in Philadelphia, still pursuing a descending ratio, in a population of 170,000, only 858 perished, up to the 28th of that month; and in Baltimore, we have reason to believe the mortality will not be greater. Certainly the encouragement held out to the west by these facts is very great. Suppose the disease should appear in Nashville, Louisville or Lexington, with their population of from six to ten thousand, and should observe the ratio which governed it in New York? In that case, 85 persons

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would die in Lexington or Nashville in a month, or less than three a day; and in Louisville, perhaps a hundred, or rather more than three a day. But the probability is that the ratio of mortality would not be greater than that of Philadelphia; in which case, these cities would scarcely lose half that number. This assuredly is not a mortality to create such alarm as has at one time pervaded the public mind. There are also other circumstances that detract from the terrors of the pestilence which have been alluded to, but which will be pointed out more fully in another part of this paper.

The *treatment* of Cholera has become more successful since it reached the United States. A smaller proportion of the diseased died in New York than did in Montreal, and in Philadelphia, than in New York. The discrepancy which has heretofore marked the views of the Faculty in relation both to the pathology and treatment of the disease, has been a subject of complaint with the public, and is thus forcibly described by the Editor of the Medico-Cirurgical Review.

"In each country where this disease has appeared, we find a very different and opposite treatment recommended, as one proved by experience to be the best. In India, bleeding, calomel, and opium, were the favourable remedies. In Russia, a practice as inert as a few grains of the sub-nitrate of bismuth in frequently repeated doses. In England the mustard emetic. Again, in different countries, remedies contradictory, as bleeding and transfusion, are proposed and made use of in full confidence. Heat applied to the body in every form, as well as the cold affusion. Drinks altogether denied, or ordered in unlimited quantity, both hot and cold. They have attempted to restrain purging and vomiting by the most powerful narcotics, enormous doses of opium; and they have also encouraged them by various emetics and purgatives. Some try to allay the irritability of the mucous membrane; others goad it with the most powerful stimulants, ardent spirits, and ammonia. Others place their reliance chiefly on the mild alkalies, soda, and magnesia to neutralize some imaginary agent; and, again, some indication has been found for acids; whilst many have trusted a trifling carminative, as essence of mint, or cajeput oil, to combat these alarming symptoms;—illustrating the remark of Sir William Crichton; 'it is a most melancholy confession, but one not the less true, that after cholera has spread its devastations from Ceylon to Archangel, from Orenburgh to Berlin, we are almost as far from a rational methodus medendi as we were when it first appeared on the banks of the Ganges.'"

In this country, the profession, though far from being unanimous, have differed less widely. Camphor seems, from

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the public prints, to have taken precedence of all other remedies in New York. It was introduced mainly by Dr. Channing, whose success with it is reported to have been extraordinary; and its friends declare that, if given in time, it will *never fail.* We cannot doubt that it has effected many cures, from the respectability of those who have recommended it. But there are other plans which have also been attended with marked success. That pursued by Prof. Chapman will be found on a subsequent page of this Journal. Dr. Hopkinson has detailed a course, in the American Journal of the Medical Sciences, which, in his hands, proved eminently successful, and which strikes us as one of the most judicious yet proposed. We therefore deem no apology necessary for making the following long extract from his paper.

"Allowing this cholera to be a disease of a typhoid character—granting it to be connected with an almost universal congestion of the venous system, and not inflammatory, what are the indications? These appear to me to be several and distinct, and that the whole success of our practice will depend upon the manner and the order in which they are met. Let us first review the symptoms of a man in the state of collapse. He is either pulseless or nearly so. The extremities are icy cold, and checkered with large drops of limpid water, collecting as fast as they are removed; the fingers corrugated, the nails blue; the tongue and breath chilled, and the thirst painfully urgent. To these add in most cases violent cramps of the voluntary muscles, purging of an almost colourless fluid, and the rejecting from the stomach of every thing swallowed. Apparently the cold extremities, the vomiting and the cramps, are the most urgent, and therefore the first to be removed, and hence the applications, frictions of various kinds, anti-emetics and opium, seem so natural a prescription, that it is difficult to resist their employment. The real disease is not studied; the symptoms alone lead every one astray. To relieve the spasms and check the vomiting and purging, nothing is more natural than large doses of opium. To restore the temperature of the skin, cold and damp, who would not resort to heat and stimulating frictions? The want of success in this treatment leads to the *trial* of something else, combining perhaps some one of those remedies, (generally opium,) or else excluding them all, and standing forth with all the presumption of a specific.

Let us now take up the indications under a different view of the disease. Supposing the venous congestion be proved to be the immediate cause of those symptoms, viz. that the morbid cause having diminished the power of the heart (whether through the nervous system or not we need not stop to inquire,) the arteries as a consequence carry less blood than usual, must not the remote parts

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of the body, under such circumstances, first feel the want of their accustomed supply? The coldness of the skin then is merely a symptom, an inevitable consequence, and as such it should not be regarded in our treatment. Again, grant that a diminished arterial circulation throughout the abdomen, produces there a state of things similar to what is witnessed without, ought not the same results to ensue, namely, a diminished temperature, a loss of tone, and suppression of natural or healthy actions? How futile then all attempts to arrest the vomiting and purging, by ordinary means, such as opium, &c. These symptoms are merely the natural results of the grand cause that is still triumphantly operating, and if they, as such, are permitted to attract our attention, are we not thus decoyed away from the main object? If this position be true, the rice water discharges pouring from the rectum, and the fluids thrown from the stomach, are worthy of no more attention than the dew-like drops that collect upon the skin. But let it be remembered the stomach is an organ, possessing a higher degree of vitality than any other viscus of the abdomen, and that the distension and consequent loss of tone in it, must exercise a greater influence over the whole system, on which account its immediate restoration becomes a matter of the first importance. I conceive then this organ to be in a state of *flabby distension*, if I may so speak, to have all its veins highly distended with blood going through a torpid circulation, its arteries contracted and enfeebled in the same ratio, and having a diminished temperature. If it be true, that through the medium of the stomach, we must hope to act upon the rest of the system, it behooves us first to prepare this organ for so important a duty; we must arouse its energies ere yet it be too late; we must bring on the tonic contractions of the muscular fibres; we must expel this black venous blood, and endeavour to restore the arterial circulation to its natural superiority. What can do this but an *emetic*? We have no common cholera morbus to deal with, and would have nothing to fear in the use of such a remedy if we had. The choice of an emetic is, however, a matter of some consequence. The mustard I have never tried; all our common emetic medicines are either slow and uncertain, or else violent and dangerous. The Russian practice suggested the salt, and experience has proved it precisely what in every respect I would have it. My first course then is to dissolve two large spoonfuls of common salt in a pint of water as warm as the patient can bear it, of which a tumblerful is given at once. Almost instantaneous emesis results, and generally some retching follows; if however these are not sufficiently well effected, that is, if it appear probable that the stomach has not completely contracted, another tumblerful is given and our object attained.

The evacuation of the stomach is not the only advantage derived from an emetic. Nothing in these cases excites the heart to action so certainly as the retching that accompanies the act of vomiting; where stimuli have failed to make the slightest impression, the effort of vomiting has instantly restored an extinct pulse. But most of all this operation is followed by a less irritable stomach, and if caution be observed subsequently in regard to drinks, no vomiting of any consequence will return. Thus we accomplish the grand objects of the first remedy; and so far as I have as yet observed, if the salt fail to excite vo-

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miting, the case is desperate. Immediately after the emetic, perhaps in five, ten or fifteen minutes, twenty grains of calomel for an adult, mixed with a little white sugar, are placed in the mouth dry, and washed down with some cold water. This medicine is given at this time, not with the expectation of any immediate effects, but with a view to its subsequent operation. Ten grains are then given at intervals of an hour, until often a drachm or more is taken. If reaction come on, the calomel is immediately stopped, as every object will be attained when the system is so far restored as to receive its influence. It is then the ulterior effect upon the secretions that makes its early use important, especially as it does not interfere with the other remedies next to be mentioned. It is now clear that thus far only one indication has been answered, viz. that of restoring the stomach to a more natural condition. The next important object is, to do for the rest of the system what we have done for the stomach, that is, to overcome or remove the universal venous congestion, but of course by a different means. For this purpose, there is no substitute for venesection, and the blood must be drawn *from the veins*. It will not do to open an artery; this exhausts the patient, but does not relieve the *venous congestion*. In this respect, perhaps, we have an exception to all other cases; *we must then open the veins*. If the pulse is not perceptible, or if it be very feeble, it is better to begin by applying cups over the whole abdomen, and then if the pulse rise, we may open a vein in the arm or in the foot, and watching the pulse, let the blood flow until reaction or the improved condition of the patient indicates the attainment of our object. As regards bleeding from the arm, unless the pulse be full or hard, and there are violent spasms, we should be cautious not to resort to this practice too indiscriminately. I have seen it do harm, where a vein has been opened before the habits of the patient or the real object of the operation has been consulted. Although the pulse from the beginning has in some cases been so good as to bear a free bleeding, it has generally been necessary to resort to cupping before the restlessness and anxiety, (attendant upon the abdominal congestion,) have been relieved. For, the tossing about, the feeling of fulness and uneasiness, seem to me all to depend upon this torpid congestion of the abdominal viscera. Although not always attainable, especially in country practice, a valuable adjuvant is obtained in the application of leeches to the epigastrium, but more particularly to the anus, for here we come directly to the point and draw blood from the abdomen. The next thing to be done, to retain the ground we have thus gained, is to apply a large blister over the epigastrium, and if we succeed in producing inflammation on the skin, (vesication is not necessary,) our patient may be considered in most cases convalescent. These are the grand principles of our practice founded upon the pathological view of this disease now offered to the medical profession in these remarks."

The following case illustrates his practice, and is a very interesting and striking one. The subject was a German.

"He was attacked about 5 o'clock in the morning, and brought into the hospital at 8.

"I arrived there at 9, saw him undergoing treatment, but did not interfere.

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The only medicine prescribed, was a mixture of magnesia, spirit of camphor —and chloric ether—with water. About half past ten, as the physician-in-chief was leaving the bed-side, I stopped, and asked his permission to treat the case. He replied—"It is not a *fair case for you*—the man is moribund." He however, left the hospital, without ordering any thing for him, and appeared to assent to my request. I then approached the patient, and found him cold and pulseless, covered with large drops of cold sweat, restless and tossing about his bed; he spoke in a whisper scarcely audible; he had no urinary discharge, but occasionally the rice water evacuations; the hands and feet blue, and marked by distended veins. I am not prepared to say what was the colour of his lips; but the whole expression of his countenance was so bad, that a single look would convince us he must die.

Such was this man's condition when I ordered the nurse to prepare the salt vomit. It was taken through some persuasion, and nearly the whole pint swallowed. In one minute vomiting began, and brought from his stomach an enormous quantity of fluids which he had taken. The retching and fruitless efforts that now followed were so severe, and his exhaustion seemed so great, that I stood, anxious for the rssult. At length he became composed, and upon taking hold of his wrist, to my great gratification and relief, there was pulse. Let it suffice now to say, that from this time, his pulse did not leave him, and that vomiting did not return. The calomel was the next step, and this was not spared. He began with one scruple, and took in the course of the day at least seventy grains. Cups were applied to the abdomen; they drew blood, and his pulse rose. A blister was next applied over the epigastrium. The effervescent draught, occasionally a little ice, and rinsing his mouth with cold water, comprised all the treatment that followed. It was not until evening that his condition was much improved. From this time, he recovered, but very slowly; large quantities of spinage stools came away the next day, at which time also the urinary discharge began to return. In a few days he was sent out to the convalescent hospital, and was restored to perfect health, without salivation. A curious eruption appeared upon his skin, during his convalescence, which in a few days disappeared."

The writer remarks,

"It may be well to mention, that by reference to the book of cases, it is found, not a single case of Cholera terminated fatally after the adoption of my system of practice, *except confirmed drunkards*, and those who were brought in too late; that is, in what is termed the blue stage, and two of these last had been treated by opium previous to their arrival."

On this subject it is due to the profession, and important to the tranquillity of the public mind, that it should be clearly explained, why, of all the cases presented to the physician, those of Cholera, as it occurs, are generally the most hopeless. It has been stated, and will be presently more fully shown, that a large proportion of its subjects are drunkards.

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And is it not known that these, from the shattered state of their systems, are ready to sink under the slightest assaults of d-si ease? Forty-five thousand, it is computed, die annually in the United States; and is it wonderful that a disease such as Cholera should thus grievously tithe them? Under any system of treatment, commenced no matter how opportunely, a large proportion of such cases must terminate fatally. They would die as rapidly of yellow fever, or the cold plague. They die constantly of common bilious fever, of influenza,—of all diseases in a word, that visit the country. They are already strongly *predisposed* to death, and require only an *exciting* cause.

In relation to the *pathology* of spasmodic cholera, congestion seems to be the state agreed on by all who have examined the bodies of patients after death, as the one most uniformly present, and, probably, as productive of all the alarming symptoms. The brain, and the lungs, have generally been found in a healthy condition; the mucous membrane of the stomach, and the bowels often; but a congested state of the internal veins has rarely been found absent. Such a condition is evidenced by all the symptoms of the disease, and removed most certainly by the means which have proved effectual in its treatment. There can be little doubt, however, that this congestion is the consequence of some previous injury done to the nervous system, but one which we have not yet learnt to detect. Upon this system, the poison, whatever it is, exerts its first deleterious influence;—in some instances, so powerful, as at once to prostrate the vital energies. In the worst cases it acts with the force of the noxious gases, inducing a state asphyxia at once. But when re-action can be brought about, and the first dangerous stage is passed over, the patient convalesces with a rapidity which precludes the idea of inflammation, or any organic læsion.

Upon a review of the phenomena of the disease, we are authorized in the following conclusions:

1st. Spasmodic cholera, as was confidently predicted, has become a much milder disease in the United States: in other

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words, it has found among our people a smaller number of fit subjects. In Moscow, the mortality was to the entire population in about the proportion of 1 to 76; in St. Petersburgh, nearly the same; in Vienna, of 1 to 158; in Hamburg, of 1 to 220; in Prague, of 1 to 61; in Hungary, the proportion of the sick to the whole population was 1 in 20, and the deaths about 43 in 100 sick. Its ravages have been confined chiefly to our larger cities. It has not spread generally through the country, nor affected villages and small towns to a serious extent. There are exceptions; but in most instances, if they have not escaped the visitation altogether, it has manifested itself in the slighter form of disordered stomach and bowels. The abodes of filth, and of moral and physical degradation have been sought out, and visited with unrelenting severity. Dr. Woods, of Boston, thus describes the first, and most active theatre of the disease in New York. And such is described as the condition of those parts of Quebec and Montreal, in which the pestilence first appeared and committed its most frightful ravages.

"The streets of business, pleasure, and respectability, were in a decent state of cleanliness, but those about Five Corners and other localities of a similar character, were in the vilest possible condition. In the middle of each, as far as the eye could reach, I saw large collections of filth, composed principally of vegetable matter in a state of putrefaction; and near the side walk to the right and left of these heaps, were streams of dirty and offensive water: these were constantly fed by the inhabitants of the neighboring houses.

The localities in which I found the cholera to prevail most frequently, were low and damp; the houses generally with wet cellars, very closely built, dark and badly ventilated, and the stench arising from some of them, and many streets, was intolerable. It was no uncommon occurrence to see large swarms of flies, infesting doorways and other places. In some instances the cellars and yards were covered with dirty waters, sometimes escaping from overflowing privies. The inhabitants were fit representatives of their wretched abodes, being composed principally of vagrants, drunkards, broken-down prostitutes and half starved children—victims of infamy and pollution prepared for the aggression of any pestilential scourge which might infect the land. At Little Water street I visited several wretches in the dreadful stage of collapse. I found some in cellars, the floors of which were saturated with water, and the walls discoloured by dampness; surrounded by filth, and with clothes barely sufficient to cover nakedness; while others lay in garrets with glassless windows, on the naked floor, having but a single rag or quilt to cover their emaciated bodies."

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2d. Drunkards are the greatest sufferers. They are more generally attacked, and less likely to recover. "In Montreal we were informed that *no one* addicted to habitual intemperance recovered."* The following striking fact was recorded by Prof. Sewall. Many others of the same purport might be adduced.

"Out of 204 patients which have been admitted into the Park hospital since the commencement of the disease, Dr. Howard, the physician of the institution, informs me that only six of the number were temperate persons. All the temperate persons recovered, while 122 of the others died. The other hospitals give nearly the same result. All citizens of good habits, and who live carefully, are considered as secure from the attack of the disease. Wherever exceptions to this rule have occurred, it has been owing to some powerful exciting causes; and while the citizens of New York generally feel the atmospheric influence sensibly, none but the irregular suffer severely from it."

3d. Intemperance in other things likewise augments its fatality. Many persons died we are told, in Montreal, from *fear* alone. Many laborers were destroyed by continuing to work in the sun during the heat of the day. The abuse of medicines has brought on the disease in many instances. But next to ardent spirits, the use of indigestible articles of food—as green corn, unripe fruits, melons, cucumbers, &c, has been the most prolific source of cholera.

4th. It is not contagious. This fact appears to us conclusively established. It broke out in Quebec on the 8th of June, when the vessel reported to have brought it was detained under quarantine, and in health, 29 miles below the city. It spread then, not like a contagious disease, from person to person, slowly from the point of its first onset, but rapidly over the whole city, attacking simultaneously places remote from each other. In Montreal cases had appeared in May. An emigrant died of it on the 9th of June. The next day other cases presented in a distant part of the city; from which time it became epidemic.

But it should be remarked, that very few cases were developed in the quarter "where the emigrants were bivouacked, barely protected from the weather by pieces of scantling, sustaining old blankets, rugs, and similar materials."† It dif-

* Report of the Philadelphia Commission. † Ibid.

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fused itself over the villages of Canada, bearing heavily upon those whose streets were filthy and ill ventilated, or whose situations were unhealthy, but passing lightly over those which enjoyed a pure air, and were careful to remove every source of pestilence. Soldiers attacked by the disease in Montreal, were removed to an island in the neighbourhood, when it promptly disappeared. Malignant as it was in that city, it rarely killed more than one or two in a family. The other members, tho' fatigued by watching, and depressed by grief, anxiety and fear, escaped unhurt. Physicians and nurses constantly about the bodies of the sick, were not more liable to an attack, than those who sought the strictest seclusion. The disease broke out in New York, we have seen, among the inmates of a prison, where, supposing it contagious, it should have been longest in appearing. The thousands who fled from that city carried not the infection with them; or if they had inhaled the seeds of the malady, they died without spreading it thro' the country. When a case appeared in a village or neighbourhood, it was not communicated to others, showing evidently a want of adaptation between the disease and the place. The soldiers under the command of Gen. Scott, among whom the disease was so fatal, did not propagate it in the neighbourhoods thro' which they passed. Finally, in many places where no restrictions have been imposed upon commerce or human intercourse, it has not yet appeared; and in Philadelphia, where the same policy was pursued, but where the proper attention was paid to cleanliness, and ample provisions made for the sick, we have seen that it was so light as scarcely to have interrupted business.

5th. The disease is generally, perhaps always, preceded by a disordered condition of the gastric and intestinal functions;—by some writers it is said, *always* by *diarrhœa.* This is a very important fact, since in this stage cholera is easily controlled. If the premonitory symptoms are attended to, a violent attack may be prevented. When this truth comes to be understood as it ought, will not the pestilence be robbed

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of its terrors? will it not be placed in a great measure under individual control, when persons have become watchful upon this point, and have learned to practise "temperance in all the appetites, and moderation in all the passions." Most of those who have perished of the disease slighted this warning, when attention to diet, and a few days rest would have obviated the danger.

Finally, when it is considered that the disease confines its ravages chiefly to cities, and to the more filthy parts of these; that it becomes powerless where general and personal cleanliness and morality prevail; that drunkards, and the profligate, and broken down in constitution are its chief victims; that, when opportunely met, and resisted by good constitutions, it is generally curable; and that it gives warning of its approach, and in its incipient stage is easily arrested, we must be brought to the conclusion that cholera is not necessarily the terrible scourge which it seemed at a distance.

Y.

ART. VI.—*A Letter on Cholera, from* PROFESSOR CHAPMAN, *to Dr. Tyler, with Remarks.*

MY DEAR SIR—I have delayed to answer your letter, till I had formed some decision as to the nature and treatment of the Pestilential Cholera which is now prevailing. These are points on which so much difference of opinion existed, that I found it impossible to make up my mind as to them, without the lights of actual observation and experience. I have now seen the disease sufficiently to enable me to arrive at satisfactory, and I trust, just conclusions on the subject. But I can present in the narrow compass of a letter, only a very concise and imperfect exhibition of my views; and indeed, such are my incessant occupations, that I have scarcely leisure to execute even this slight sketch.

The disease, *wholly independent of contagion*, is caused by an epidemic agency, of which we know nothing with certainty. It is not improbable, however, that it is owing to an aeriform poison, which acting through the medium of the stomach on the ganglionic nerves, so impairs that system, that its functions are in a greater or less degree suspended. As always happens, where sensorial or nervous influence is with-

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held, there is, in this case, a recession of blood from the periphery of the body, and correspondent accumulations of it in the deep seated vessels, subversive of the proper distribution of it in the circulation, attended by a vitiation or suppression of the secretions. This, in a word, is my theory of the disease, the truth of which, I think, is sustained by the symptoms, the phenomena on dissection, and the mode of cure.

It is generally held here, that cholera is almost uniformly preceded by considerable disturbances of the alimentary canal, by nausea or purging, or the two united.—That affections of this sort, are very common in the city and elsewhere, cannot be denied. But whether they constitute the preliminary stage of the disease is very doubtful. It seems to me they ought rather to be considered as a condition, arising from distinct sources of irritation predisposing to the disease. Can it be credited, that a cause ultimately operating so powerfully as that of cholera, should endure for three or four or five days, merely teasing in this slight manner, the stomach or bowels? The transition from these mild and lingering affections, to the explosion of cholera in its fullest force is far too sudden and violent, to suppose that they are one and the same disease varied only by stages. I know not the analogies by which the hypothesis can be supported. Nor is this prelusive indisposition mentioned by any of the writers on Asiatic cholera whom I have consulted. It is scarcely to be presumed, that so prominent a fact, had it an existence, could have possibly escaped the attention of these very able and experienced historians of the disease.

Being attached to armies, and more particularly from their position in Hospitals, they enjoyed the best, and peculiar advantages, for accurate and discriminating observations. It was first noticed, and promulgated by some of the Brittish publications, though not sanctioned by all, and from a similar coincidence of such derangements with the epidemic in this country, the notion has been espoused by us. Be it as it may, these disorders should at once be removed, as they are apt, at all events, to invite an attack of cholera. They do not differ from the ordinary complaints of the season, and require no peculiar management.

Genuine cholera, for the most part, comes on with little or no premonition. The earliest symptoms are complaints of load, and oppression, and anxiety about the præcordia, with an internal sense of heat, referrible to the stomach or bowels, with great thirst and a whitish tongue, and at the same time, the head is confused, the expression of countenance haggard, accompanied by slight nervous tremors, muscular weakness, cool skin, and either a quick and somewhat feeble, or a full and struggling pulse. Copious evacuations upwards and downwards, of a fluid resembling dirty or turbid rice water, with flocculi mixed in it, soon occur, followed by cramps or spasms of the muscles of the extremities and abdomen. These are seldom so violent as has been represented, and never extend to the alimentary canal. An aggravation of the preceding symptoms rapidly takes place, and in an hour or more, the tongue becomes icy cold, the skin more chilled and sodden, though feeling hot to the patient, covered with dewy viscid perspiration, the hands shrivelled or wilted, as if macerated, the nails of the fingers blue, the pulse scarcely or not at all perceptible, the face sunken, especially the eyes, around which is a dark circle. This color gradually diffuses itself more or less over the entire surface, partaking of the various shades of lividness, from a saturnine to a blueish or blackish hue. During this period the thirst is intense, the heat of the stomach in some instances is increased to a burning sensation, the respiration greatly embarrassed, the air expired cold, the voice low, or whispering and plaintive, the diaphragm convulsed, and there is a total suppression of the urinary and other secretions. Discharges from the alimentary canal, and the spasms, like-

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wise cease or are much diminished. The intellectual faculties, though obtuse, are seldom otherwise affected, and in some instances, their integrity is throughout preserved. Death ultimately takes place in a sort of tranquil stupor, or with indescribable jactitation and distress, the latter state being by far the more common.

As I have briefly described the disease, such is the tenor of its character and progress, though occasionally diversified in some respects. Thus I have seen its accession as sudden as the electric shock, and have met with cases without spasms, or vomiting or purging. Many other anomalies might be mentioned, could I indulge in such details. The disease may be properly divided, in most instances, into two stages, —that of aggression and collapse.

Called at the commencement of an attack, unless there is extreme depression, I bleed freely from the arm, and uniformly cup the epigastrium, and give calomel largely, combined or not with opium, according to the severity of the spasms. The case will almost invariably yield to these remedies, and we have no further trouble concerning it. But where the attack is confirmed, or in other words, the state of collapse exists, the difficulties of management are vastly increased, and the practice is somewhat different. The first step under such circumstances is to puke actively with tepid salt and water, a tumbler full at a time. This usually settles the stomach, always thirst, produces some degree of reaction, a stronger pulse, increased warmth of surface, and a resolution of the spasms. Cooperating in the same design of arousing the vital forces, and exciting the skin particularly, the body and extremities may be rubbed with warm flannels. Let a vein be then opened, and if the blood flows freely, take a large quantity and especially should the pulse rise and the blood become florid. But where the reverse happens, or you have slowly to coax out the blood, or the pulse is sensibly weakened by the loss of it, stop the operation, and apply twenty or thirty cups to the abdomen, including the epigastrium, which, though they may not draw much blood, are eminently serviceable as revellents—The cups are to be succeeded by a blister to the same parts. Calomel is next to be given in the dose of five ten or twenty grains, frequently repeated, till the aggregate amounts to about a drachm, and then worked off with a table-spoonful of castor oil. As the result of these means there are commonly bilious evacuations, discharges of urine, and other proofs of the restoration of secretory power. Little more is demanded than what has been mentioned. I have, however, sometimes known, though rarely, at this point of the case, irritability of the stomach to return, with the appearance of approaching exhaustion, in which event stimuli are to be resorted to—the best of which are, a strong infusion of cayenne pepper, or clove tea, or spirits of camphor, or the aromatic spirits of ammonia, or mint julep. But they are cautiously to be administered, and in small potions, or they are instantly rejected, or they overwhelm the energies of life or more slowly induce typhoid prostration.

Drink is sometimes vehemently solicited, particularly in the height of the attack, and the instinctive desire for cold water, or even for ice, may be gratified in moderation. The proper nourishment in convalescence, the only time when any is wanted or to be allowed, is chicken water or beef tea, rendered agreeably pungent with cayenne pepper. Thus I have hastily laid before you an outline of my mode of managing this disease. It may be observed that, with scarcely an exception, it is depletory or evacuant. Deluded by false appearances of debility in the disease, and still more by the weight of authority, I adopted, when it first broke out among us, in common with my medical friends, a course of practice in conformity with such an impression—and most disastrous was the issue. Nearly every patient, amounting to

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five or six, in the different hospitals, died. The prominent indications seemed to call for heat to the surface, and the internal exhibition of the diffusible excitants. Every variety of bath, warm water, vapour, heated air and topical applications of hot sand, or oats, or salt, &c. were used, and also frictions with the spirits of turpentine alone, or united with camphorated mercurial ointment, and other articles. Brandy, ether, camphor, vol. alkali, &c. &c. were in succession tried, and the whole of these means with no other effect than an inconsiderable exasperation. The suffering, indeed, induced, was as great as I have ever witnessed from the application of any remedial process. No practical lesson is more important than that in the cure of this disease, all such appliances and medicines are mischievous, till evacuations are premised, and then to be most discreetly directed. The system previously, is utterly intolerant of them, and I have found it better to expose the patient naked to cool air, than to cover him over even with a blanket.

It were easy to acquaint you with divers other methods of treating this epidemic, or to enumerate a number of special remedies that have been proposed. Dismayed, as it were, by the fearful character of the disease, practitioners have been too prone in its treatment, to abandon their principles and well tried remedies, in analogous cases, to seek a resource in specifics and nostrums.

I do not mean to vaunt of my success, but on a fair comparison of all that I have seen attempted, I am led to an unqualified preference of this plan. It cannot be charged with being tentative or empirical—is deduced, on the contrary, from established views of pathology and therapeutics, and is sanctioned in most of its features by the lengthened and concurrent experience of the distinguished and authoritative writers on the disease in India. Many may be cured by it, and some will sink under the force of the attack in despite of your efforts. The case not being too far advanced, a triumph over the disease is pretty certain. Cholera is, on the whole, more tractable than yellow fever, or the winter pestilence, which devastated our country during the late war.

Ever, my dear sir, yours, most truly,

N. CHAPMAN.

Philadelphia, August 18, 1832.

P. S. I have omitted to mention that this very practice, by emetics, calomel, bleeding, &c. is the one which I have for twenty years taught in my lectures, as most appropriate to the worst forms of the ordinary cholera of our own country. You will find a tolerable synopsis of it in my work on the Materia Medica. I will only add, that there is considerable difference of opinion among us as to the best means of puking, some preferring ipecacuanha or the sulphate of zinc, &c. In Britain, the mustard emetic seems chiefly to have been used, while in France the ipecacuanha, and in Russia, and other countries of the north of Europe, the salt and water. The latter, on the whole, I think is most appropriate, though I have in some instances resorted to the ipecacuanha, very advantageously.

REMARKS.

This letter will attract much attention, for two reasons; its *matter*, and its *authorship*. Some of the former is of deep interest, and the latter is of high and well deserved authority. Standing, as Dr. Chapman does, at the head of his profession, in Philadelphia, and on a level with any public teacher of the day, his opinions, no less than his experience, have great weight with the medical public, as well as with the whole American community. This invests him with a corresponding pow-

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or for good or for evil, according as his views may be correct or otherwise. The same strength and resources which make him a host in defence of truth, may, through mistake, render him formidable, as the advocate of error. It is necessary therefore, that his opinions, if doubtful, be strictly examined.

As far as we may venture to judge of the pathology and treatment of a disease we have never seen, the Professor's practical views appear to us to be sound and judicious. His lancet, cups, and leeches, together with his salt-vomit, calomel, opium, blisters, and hot frictions, he employs with boldness, and we doubt not, with success; for they appear to us the remedies to be relied on. But, in one of his theoretical opinions, which he advances with considerable confidence, and seems to lay some stress on it, we cannot concur with him. We allude to his denial that the nausea and diarrhœa, which so generally precede cholera, make a part of the disease. He acknowledges that those affections are very common in Philadelphia and other places, where cholera prevails. But he "doubts," or rather plainly disbelieves in their constituting a "preliminary stage" of that complaint. He thinks they should be "considered a condition, arising from distinct sources of irritation predisposing to it." He does not deem it credible "that a cause ultimately operating so powerfully as that of cholera, should endure for three or four or five days, merely teasing in a slight manner the stomach or bowels." And he thinks the "transition from affections so mild and lingering, to the explosion of cholera in its fullest force, far too sudden and violent, to suppose that they are one and the same disease, varied only by stages." He declares that he "knows not the analogies by which the hypothesis can be supported." Nor, he adds, "is this prelusive indisposition mentioned by any of the writers on Asiatic cholera, whom I have consulted." He acknowledges, however, that those precursory derangements of the alimentary canal exist in Great Britain, as well as in America. He might have added, that they exist also on the continent of Europe, as well as in India. For evidence of their occurrence in the latter place, which he seems to doubt, we refer him to Orton, a very respectable writer on the cholera of India, who says; "It (cholera) is frequently preceded by a *simple diarrhœa*, continuing several days." Further testimony to the same effect, he will find in the report of the Madras Medical Board, who say; "a slight *nausea*, a *laxity* of the bowels &c. are often found to precede cholera." And we believe that wherever those affections appear, they are almost universally regarded as forming the inceptive stage of cholera. We are not apprized that any *physician of distinction*, except Professor Chapman, has denied this. And the opinion of a few obscure physicians, when opposed to that of the force and intelligence of the profession, is not worthy of notice. Nor ought he, we think, to become the advocate of such an opinion, except for stronger reasons than those he has adduced.

No man has a more correct and thorough knowledge, than the Professor, of the general laws, as well as of the incidental phenomena of epidemical diseases. It need not be suggested to him, therefore, that when an epidemic is fairly established, it either banishes from the sphere of its prevalence all other constitutional complaints, or assimilates them to itself. Is it influenza? no febrile disease can exist without a cough. Is it scarlatina or measles? every febrile affection is marked by some cutaneous eruption. Will the professor contend that this affection of the skin or of the mucous membrane of the lungs is owing to some "irritation" of those organs altogether apart from the poison of the prevailing complaint; and "predisposing" to an attack of it? We are confident he will not. No cause of cutaneous or pulmonary "irritation," other than the atmospherical miasm, exists. Nor is any necessary

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to account for the eruption or the cough. The poison of the epidemic gives a constitutional predisposition to the one or the other, and that is sufficient. Some exciting cause does the rest. As respects cholera the same law prevails. That complaint is epidemic in Philadelphia. Its seat is the abdominal viscera; and it effects particularly the stomach and intestines. Its first attack is on the mucous lining of those organs, where it produces its own peculiar "irritation." But that irritation is not sufficiently powerful to give rise immediately to an "explosion" of the complaint. It usually waits for the aid of an exciting cause. Let that aid be furnished by any excess or impropriety in diet, exercise, exposure, or passion, and the explosion occurs. Why? Because the predisposition existed, in consequence of the previous impression of the epidemic poison. Suppose that impression had not been made; but that the existing irritation had been produced by some other deleterious agent—say a dose of corrosive sublimate or of arsenic—would the same exciting cause give rise to cholera? certainly it would not. It would aggravate the symptoms of the affection resulting from the metallic poison; and there the matter would end. Professor Chapman falls into an error, in alleging that any irritation, save that produced by the poison of cholera can generate a *real predisposition* to that disease. He may as well contend that a poison, other than that of measles, may predispose to measles, or that one, other than that of influenza, may predispose to influenza. Yet he *will* not do so. His knowledge of medical science prevents him. There is a radical difference between an *increased liability* to a particular complaint, and a *positive predisposition* to it. The latter can result only from the action of the *peculiar poison* of the complaint; whereas the former may arise from any cause which injures the constitution, and weakens its preservative power. This distinction is not usually made by medical writers; and yet it is as real and well defined, as any other in the science of pathology. The fact, then, that the taking of an improper meal, or any other act of excess or imprudence, produces an explosion of cholera, in *all persons* affected by the "teazing irritation" and "diarrhœa," shows conclusively that the poison of that epidemic has been at work; and that the existing irritation is its product. But the effect of two distinct irritations cannot be present in the same tissue at the same time, any more than two bodies can be, at the same moment, in the same point of space. Hence there can be, in the stomach and bowels no "irritation distinct" from that of the epidemic poison. It does appear, then, we think satisfactorily, that the "prelusive" affection of the alimentary canal is the "preliminary stage" of cholera—We have another reason for entertaining the same belief. We understand, that the discharge from the bowels, in the precursory diarrhœa, *resembles that of mature cholera.* If so, we consider the fact amounting to evidence, which we know not how to resist, that the deranged action producing the discharge, is, in each case, the same. In fine; wherever cholera prevails epidemically, a great proportion of the inhabitants of the place, if not the whole of them feel more or less of the epidemic influence. And they feel it in some form of derangement of the alimentary canal. But this derangement does not always amount to nausea or diarrhœa. It consists perhaps much more frequently in impaired digestion, with unusual and sometimes painful sensations in the stomach and bowels. Even the inferior animals frequently suffer in the same manner—at times very severely. Will professor Chapman attribute all this to some "source of irritation," apart from the epidemic poison? No; he will not. He is too well informed on the subject, to commit such a mistake. Yet the diarrhœa and nausea, which he would thus explain, are nothing but more prominent effects of the epidemic miasm—a nearer approach to the actual disease. To no other cause can a

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derangement so general, and so closely assimilated to cholera when developed, be reasonably ascribed. If there be any other source of morbid irritation, so extensively prevailing, what is it? We ask for information.

Another law of epidemics is, that they are not always identical in character, but put on different symptoms, in different places, and at different times. Alibert enumerates and describes near twenty different forms of irregular intermittents, many of which we have witnessed ourselves. We have also seen influenza, in some of its epidemical prevalences, characterized very generally by severe opthalmia. And who does not know that yellow fever and scarlatina differ much from themselves, in different years? Admit, then, that cholera, in Asia, is not ushered in by nausea or diarrhœa (yet the admission is *gratuitous*, the allegation being without proof, or rather opposed to it)—but admit it, we say, for the sake of the argument; and what does it amount to?—Plainly to nothing else, than that the epidemic has assumed, in some of the countries, to which it has travelled, a symptom, which did not mark it, in the place where it began. And we would ask, for information, what epidemic can be named, that does not occasionally do the same? In some of the very worst and most suddenly fatal cases of cholera, there is no discharge from the alimentary canal at all. Does this variety occur in the disease, because there is *no* irritation of the stomach and intestines; or because those organs are irritated by *some agent, other than the poison of the epidemic?* No, surely. The modification is produced by such an overwhelming impression of the poison, as completely extinguishes vital action—so far, at least, extinguishes it, in the alimentary canal, as nearly to suspend secretory action in it, and excretory action altogether.

But Professor Chapman's most palpable error remains to be noticed. He represents the transition from the "mild and lingering nausea and diarrhœa, to the explosion of cholera in its fullest force," as "far too sudden and violent, to suppose that they are one and the same disease, varied only by stages;" and states explicitly, that he "knows not the analogies by which the hypothesis can be supported."

In neither of these views of the Professor can we concur. We do not consider the transition either too sudden or too violent; and we think there are many analogies to prove that it is not so. Every congestive fever attacks suddenly and *violently*—not unfrequently in the form and with the rapidity of apoplexy. Yet this *sudden* and *violent* attack is often made by a transition, not from a "mild and teazing" complaint; but from no complaint at all—from a state of entire health. Congestive bilious fever, as well as congestive scarlatina often come on without an hour's warning. The individual attacked eats a plentiful supper, and goes to bed in unusual health and spirits. In the course of the night the disease invades him suddenly, and destroys him the next or the second day. Such cases are far from being uncommon. The same is true of yellow fever and oriental plague. From a state of perfect health, the transition is almost instantaneous, to a state of disease, which soon proves fatal. The same may be affirmed of malignant intermittents. A person is exposed to the miasm productive of these complaints. For a week afterwards or longer, he continues well. At length he is attacked suddenly, is deeply prostrated by the first paroxysm, and destroyed by the second. How often, in military life, do soldiers go on parade in health, and suddenly fall down, with their arms in their hands, under an attack of congestive fever. Medical works abound in statements to this effect.

In many of these cases the poison had been lingering in the system *for days*, without producing any complaint, awaiting the aid of an exciting cause. At length the aid is received, and the fatal explosion follows. Of cholera the same is true. The

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poison is in the system; but, instead of lying perfectly dormant, it produces slight disorder in the alimentary canal. An exciting cause occurs, and the disease is developed in all its strength. Yet, we repeat, that cholera attacks at times in its worst form, without a previous diarrhœa, or any other precursory affections. Nor is there reason to believe that any new or unusual application of the epidemic poison has been made. That poison has been for days or perhaps weeks in secret operation on the system. Here then the transition to the real explosion of the disease, is undeniably both sudden and great.

To understand fully the suddenness of the transition, and the violence of the attack, in cholera, two things are necessary—to remember that the poison of the complaint has been at work, and has produced the predisposition—and that the force and suddenness of the onset will be in proportion to the strength of the predisposion, and that of the exciting cause. Other things being equal, a heavy debauch will excite a worse attack, than a light one; and a severe paroxysm of terror will do more mischief, in the same way, than a moderate fit of anger. Yet either of these causes, acting on a system already predisposed by the poison of the complaint, will bring on the explosion.

We cannot close these remarks, without again expressing our regret, that Professor Chapman has allowed himself to fall into the inaccurate and deceptive language of the day, respecting *predisposition* to disease. Intemperance is universally said to *predispose* to cholera. This is a mistake. By weakening the preservative power of the system, intemperance creates an increased liability to every epidemical disease, cholera not excepted. But it does not generate *predisposition*, in the true sense of the word. Nothing can do that but the peculiar poison of the complaint. If it could, an exciting cause would produce cholera in habitual drunkards, at all times, and in every place, however healthy. But such is not the case. Except when the epidemic condition of the atmosphere exists, those degraded beings are as free from cholera as the most temperate. In alleging, then, that any "source of irritation, distinct" from the poison of cholera, can actually "*predispose*" to that complaint, the Professor lends his high authority to sanction error.

C.

OBITUARY NOTICE.

It is with sentiments of no common sorrow, that we announce the death of H. Hulbert Eaton, A. M. Professor of Chemistry in the Eclectic Institute, and Assistant in the Chemical Department of Transylvania University. He died, of pulmonary consumption, on the 17th of last August, in the twenty-second year of his age, leaving a youthful widow, and a large circle of friends to lament his loss. Mr. Eaton was an *uncommon* man. In his attainments, which were far beyond his years, *accuracy* was the predominant

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quality. He had no *opinions*—at least he contended for none. His aim was *positive* knowledge, which alone he valued. And of that, his stock, especially in the Natural Sciences, was abundant. In his acquaintance with those branches, and in his industry and ambition to become further versed in them, we believe no man of his age in the United States surpassed him; and we are confident but few equalled him. In all his pursuits, his end was practical usefulness. And he was as amiable in disposition, and as modest in deportment, as he was accomplished in intellect. Added to the other excellencies of his character, the clearness and simplicity with which he communicated knowledge to his pupils, fitted him peculiarly for the business of instruction. We promise our readers, in our next number, a Memoir of his brief life—alas! much too brief for science and his country—from the pen of a friend, who knew him well, and is every way competent to do justice to his memory.

ADDITIONS AND CORRECTIONS.

In the statement contained in our last number, of the "Regulations for Graduation in the various Medical Colleges in the United States, which ought to have been credited to the Transactions of the New York Medical Society, some errors were committed with regard to Yale College. The following extracts from the printed Circular of that school will set the matter right.

"The course of Medical Instruction in Yale College, begins usually at the expiration of twelve weeks from the third Wednesday of August, which, for the year 1832 is Thursday, November 8, and it continues sixteen weeks. There are at least five lectures daily throughout the term, and a part of the time six.

By the statutes of the state, the requirements for graduation, are three years' study for those who are not Batchelors of Arts, and two for those who are; attendance upon two full courses of lectures, either at this institution or at some other of a similar character; an examination and dissertation to the acceptance of the state board of examiners; the attainment of twenty one years of age, and a good moral character. The examination of the candidates for graduation, is held the week immediately succeeding the termination of the lectures, and the degrees are also conferred at that time. The graduation fee is $20.

The medical students are entitled to gratuitous admission to the anatomical museum and the medical and academical libraries, to the lectures upon mineralogy and geology and to the cabinet of minerals; and also to the lectures on botany and on natural philosophy, on paying the customary fees of those courses."

For want of room, the selected matter prepared for this number has been omitted.

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THE

TRANSYLVANIA JOURNAL

OF

MEDICINE

AND THE ASSOCIATE SCIENCES.

FOR OCTOBER, NOVEMBER AND DECEMBER, 1832.

Original Communications.

ARTICLE I.—*On Diseases of the Mucous Membrane.* By JOHN P. DECLARY, M. D. Member of the Lexington and Louisville Medical and K. L. Societies. Late Health officer of the city of Louisville.

THIS subject embraces a vast field in the pathology and physiology of the animal structure. Mucous membrane, in extent, is commensurate with the alimentary canal, which influences in a great degree, most of the diseases, to which the human system is liable. It lines all open passages or canals, and is connected with the skin at their extremity. The mouth, the nostrils, the œsophagus and the intestines, the urinary organs and the uterine system, are covered by it.

Mucous membrane is firmly adherent to the different passages which it covers. It is supplied with glands and absorbents, blood-vessels and nerves, as the different functions of different parts require. From its internal association with the nervous system, the operations of the mind affect its secretions, while, in return, the mind suffers in consequence of its diseases.

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Membrane is the most simple of organized structure, and enters, to a very large extent, into the composition of the human system. Muscles, bones, tendons, ligaments, the hair, the glands, are incorporated with it. It tends to give strength, stability and firmness, to the animal frame. Mucous membrane, in relation to the internal cavities, is the barrier, like the skin, interposed to defend the nervous system from direct contact with external irritants. Covering as it does, the mouth, fauces, œsophagus, stomach and lungs, it presents a wide surface upon which noxious causes may operate. In the healthful operations of life, its influence is equally as extensive. It is the medium through which aliment and all sapid and odorous bodies make their impressions.

Its diseases are peculiar; and my observation goes far to convince me, that as this membrane is primarily affected, so should remedial agents be directly applied to this point. Could we strike at fever, upon its first appearance on the mucous membrane, how much professional labor, and how much suffering would not be saved. The routine of bloodletting, nauseants &c., which to save the patient bring him necessarily to the verge of the grave, would then be dispensed with. Nor can we doubt that, in the onward progress of medicine, this perfection in practice will be attained.

By an attention to disease in all its varieties and forms, and by reading and reflection on its character, the practitioner is enabled to treat it judiciously. But he finds it necessary to modify it according to the nature of the attack, the habits, constitution &c. of the individual, as well as the locality and the season in which it occurs. Take a simple case of fever as an example of my meaning. Irritation of the mucous membrane of the stomach and bowels may be induced by improper diet; imprudent exposure at night disturbs the action of the skin; the equilibrium between the alimentary canal and the dermoid surface is destroyed, and disease is the consequence. What are the indications of treatment? Simply to remove the irritating matter from the

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alimentary canal. Again; an individual, during the summer months, exposes himself to extreme heat during the day. At night he remains up to a late hour, and is guilty of a debauch. When he returns to bed, his sleep is disturbed, and if it has happened during the existence of a miasmatic state of the atmosphere, his symptoms will be unlike those presented in the former case. He will be found next day with a cold skin, weak pulse, and coated tongue, with a bilious tinge of the adnata, heat in his stomach, depression of spirits &c. What are the indications in this case? The stimulation has produced a high state of excitement in his system, which is followed by collapse. The stomach and bowels are offended by a mass of alimentary matter which they are unable to digest. The first step, then, is to remove this source of irritation. We may administer a mercurial cathartic, which while it carries off the foreign matter, increases the secretions from the mucous surface, and the liver. The state of the nervous system also claims our attention. The shock which it has sustained is of a more serious character, and is soon communicated to the sanguiferous system, the lungs, in fact to the whole man, and imposes upon the practitioner the necessity of resorting to active measures in order to prevent structural disorder.

We also find a necessity, for a vigorous course of treatment, in the lowest grades of fever, where the mucous membrane becomes the greatest sufferer. A neglected case of the above character, may be cited as an illustration of the happy influence of active treatment under the most unpromising circumstances.

A friend and acquaintance some few years since returned from a journey to the South. He had been sick some eight or ten days previous to his arrival here. Being sent for, indications prompted me at once to abstract blood, and enter upon a course of mercurial purgatives to relieve what seemed a state of febrile irritation. The attack had commenced with a dysentery. The symptoms, during a week's attendance were but little improved. Fortified by the advice and

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practical experience of Dr. Richard Ferguson Sen. of this city, a still more active course was adopted and persevered in several days longer. Our patient became hourly worse, and at the period of which I speak his situation was as follows. Extreme emaciation had taken place, the skin had a peculiar burning feeling, low delerium had existed for several days, sordes were accumulated on the teeth, and the tongue was black, dry, and so thoroughly divested of moisture as to appear as if it would break under the fingers. The urine was scanty, and the discharge from the bowels small, offensive and watery. Every symptom threatened a speedy dissolution. The arrival of Professor Caldwell in the city at this time, and his acquaintance and intimacy with my patient, enabled us to avail ourselves of his judgment in the case. In a general consultation, we determined, as all previous remedies used in common quantities had failed, to adopt a more decisive course—to exhibit two drachms of calomel and thirty grains of aloes, every two hours, for twenty-four hours, and larger if necessary, and until a proper impression should be made upon the system. The course was faithfully persevered in. Six hours after its adoption an hæmorrhagic tendency manifested itself from the liver and intestines, by which a large quantity of coagulated blood was discharged. In twenty-four hours, fourteen hundred and forty grains of calomel, and three hundred and sixty grains of aloes, were exhibited to our patient. The action of the liver, the heat of the skin, the urinary secretions were restored; the delirium and dryness of tongue disappeared, consciousness was restored, and no fears were felt, except from the effects of the large quantity of the medicine administered. I was not then aware as experience has since taught me, that where the skin is hot and dry, the tongue parched and black, and the general secretions diminished, the quantity of calomel need not be a subject of consideration; and that it is only when the tongue becomes moist around the edges, when the skin loses its heat, and the stools begin to assume a dark consistent character, that there is need of caution. Our patient experienced no

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inconvenience from the quantity; but, on the contrary, after Dr. Caldwell's departure, and at the suggestion of Dr. Ferguson, small doses of twenty grains were continued every four hours, to keep up the already excited secretions. I was also taught by this case not to urge, or even to administer tonics, in the utmost state of debility and prostration, when the cause of disease has been removed; but to give the powers of nature their full operation in the restoration of the system. It is simply necessary to add, that our patient perfectly recovered and has since enjoyed the most robust health.

Strict attention to the state of the mucous membrane is of so much importance in the practice of physic, that I offer no apology for urging it upon the profession, under almost every state and form of disease. Practical facts are so valuable that I shall present another case, although of a different character. A negro man from the country was sent to this place and put under the charge of a medical practitioner of most unlimited reputation. His disease was opthalmia and of a periodical character, occurring annually in the fall months. It had recurred for several years, and was attributed to the smoky state of the atmosphere, peculiar to different parts of the west, at certain periods. Escharotics of some kind were locally applied, and purgative pills of a secret composition, were administered for several weeks, during which time the unfortunate sufferer, experienced every imaginable torment. At length the gentleman under whose charge he was placed, required my attendance on him. His agony when I saw him was extreme. The eye lids were red, swollen and completely reversed. The eyes themselves were deeply sunken in the head, and presented one confused inflamed mass. Strong febrile irritation was present with general restlessness. The ointment had been continued up to the period when I first visited him. I immediately abstracted a quantity of blood, and gave the patient a saline purgative. The bleeding was repeated the next day. On the second day one of the eyes burst, and the external humors escaped. Dr. A. G. Smith, a gentleman of high professional reputa-

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tion, and just returned from a medical tour in Europe, was called to my aid in the management of the case. Our attention was directed to the state of the mucous membrane of the alimentary canal, and we determined upon a vigorous course of mercurial medicine. Fifty grains of calomel, with one of opium, and three of ipecacuanha were exhibited, followed by saline cathartics. This course was continued every other day, for a week, when the tongue presented the freshness of health. With much difficulty the other eye was partially saved, and his general health restored.

The following case is also to the point, as showing the necessity of continuing the purgative plan until the mucous tissue is restored to its healthy functions. A gentleman of this county, aged 75, troubled with dyspepsia, determined upon placing himself under the care of an itinerant dyspeptic Doctor. After being sworn to secrecy, and pursuing strictly the course recommended, he found his general health grew worse. Diarrhœa, nausea, and some febrile action were present, when I was called to visit him. Having attended him previously I found his general health much affected by his late course. The diarrhœa was more constant, which was attended with extreme debility. His tongue was much coated, and he manifested a disinclination to any further medicines. He was induced, however, to commence a mild mercurial course, and a few days satisfied him, that however long continued, the disorders of the mucous coat of the stomach yield easily to a judicious course of purgatives.

In this city every practitioner must have experienced the difficulty of curing gonorrhœa, on account of the unwillingness of patients to adhere to a strict dietetic course. When this disease becomes confirmed, the usual remedies are perfectly unavailing. Immense quantities of balsam copaiva are taken, with the usual variety of nostrums but to no purpose. Under such circumstances, the state of the mucous membrane of the alimentary canal demands our attention; and I have found that a few large mercurial purgatives, with

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nauseants, and saline draughts, aided by attention to diet, soon effect a cure.

In examining a patient with gonorrhœa of long standing, the state of the urethra, the spermatic chord and the appendages, should excite our particular attention. The abdomen too should be carefully examined, as the disease most frequently arises from abdominal irritation, and can only be removed by removing its cause.

The following case is in point. A gentleman became my patient who had labored under gonorrhœa for upwards of two years. He had been treated by several of the most respectable physicians of New York, Philadelphia and St. Louis. His mind had become despondent, from the apparent hopelessness of a cure. I found him with a considerable discharge from the urethra, together with an enlargement of the spermatic chord and occasional difficulty in retaining the urine. In passing my hand over the abdomen, I found it hard and tumescent. On examining his tongue, it had a coated appearance, and his skin was sallow. I stated to him the necessity of a purgative course of treatment, and attention to diet, until the mucous membrane was restored to its natural action. With the healthful return of the secretions, which was effected by a continuance of mercurial purgatives, every other day, for the space of two weeks, all his symptoms promptly disappeared.

I have mentioned the intimate connection between the functions of the mucous membranes and the general operations of the mind. Healthful mental exertion is the consequence of general bodily health, and the vagaries of the mind are often dependent upon functional derangement.

An intimate acquaintance, who had long indulged in the comforts of life, to a greater degree than was prudent, found himself for the first time, after a debauch, in a state of bodily and mental debility, which called his serious attention to his situation. To all appearance in the best health, he had indulged at a dinner party on the previous afternoon; had eaten freely, and partaken of a variety of choice wines; the consequence was a state of high excitement, until stupor

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supervened. Deep sleep, for the space of six or eight hours came over him, and he awoke in the night, in a cold clammy sweat, with a feeling of depression, never before experienced, followed by a restlessness, which required him to leave his bed and walk the room, to keep himself, as he imagined, from dying. I saw him in this situation, and the terrific state of his mind was indescribable. His pulse was slow and weak, his skin cold, his eye wild and brilliant. From the state of the skin and the intumescence of the abdomen, the cause of his disease was apparent; but my attention was first directed to his mental weakness, arising, as I felt conscious, from the prostration of the bodily powers. I immediately ordered stimulants, and watched their operation on his pulse. A moderate degree of excitement was the result, and the powers of his mind rose in proportion. The necessity of attending to the state of the abdominal canal was apparent. After a regular purgative course, immediately adopted, and continued for several months, the tongue resumed its healthy aspect, and bodily health and mental tranquillity were restored.

This is but one of the many cases of disease, the result of the long continued or too free use of alcohol in its different forms. Nor should it be forgotten that the same morbid condition of the alimentary organs may be brought about by a too free indulgence in the luxuries of the table. It is greatly to be deplored that the habit of drinking prevails extensively among the people of the west. Morning drams are peculiarly deleterious, since the stimulating liquid comes thus in contact with the unprotected coats of the stomach.

If persons who indulge in such a course of free living would long counteract its prejudicial influence, and cling to life that they may enjoy it, they must be strict in their attention to their bowels. They should take a few blue pills at night, so as to promote biliary secretion, and unload the intestinal canal of the accumulated feces. Besides this, after one hearty meal, they should give their digestive organs rest, until the process of assimilation shall have been complet ed.

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ARTICLE II.—*A Biographical Memoir of* H. HULBERT EATON, A. M. *late Assistant Professor of Chemistry in the Medical Department of Transylvania University.* By CHARLES W. SHORT, M. D.

(Delivered Nov. 10th, as an Introductory Address to the Medical Class, at the opening of the Session of 1832-3.)

GENTLEMEN:

I APPEAR before you on the present occasion, not for the purpose of delivering to you an address strictly introductory to that branch of Medicine which it is my province to teach in this School, but to devote the first hour of our meeting to a last tribute of respect to the memory of one, who was endeared to me by many ties of friendship—who was highly and justly esteemed by my colleagues—who was well known, and consequently much respected by many among you. The occasion I trust will be deemed a meet one, to make an heart-borne offering before you at the shrine of private friendship, and to express, in this public manner, the respect and estimation entertained by this faculty, for the character and attainments of him, who, although by many years the youngest of our body, and the last who has been added to it, yet in the wise and inscrutable dispensations of Providence has been the first removed from among us.

Indulge me therefore for a few moments, whilst I endeavour to pourtray before you, a brief outline of the life, the labours and the character of HEZEKIAH HULBERT EATON, late assistant to the Professor of Chemistry in the Medical Department of Transylvania University.

The Biography of one so young, whose few and short days were alone devoted to pursuing the noiseless path of Science, cannot be expected to offer adventures or incidents of a kind to catch popular applause, or to engage the attention of the public; but to you, young gentlemen, who, like the subject of

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our notice, have entered on the same road to knowledge, and look to its pursuit in one of its most honorable branches, as the business of your life, the few circumstances which I may mention in reference to the early life—the education—the advancement and promotion of our late colleague, will not be uninteresting. And here I must acknowledge myself indebted for a portion of what I shall relate to the kindness of a mutual friend, who from longer association and more intimate connexion, knew Mr. Eaton even more thoroughly than myself.*

Mr. Eaton's ancestors were of the first respectability, and among those on the paternal side was the gallant General William Eaton, the celebrated Hero of Derne, whose bold and chivalrous exploit on the coast of Barbary, in capturing by storm, with but a handful of men, one of the strongest holds of the Tripolitans, forms a proud and romantic subject of American military enterprise; and was the first step towards bringing that heretofore indomitable race to terms of peace and amity. The father of our friend was Professor Amos Eaton, well known for his exertions and success in rendering popular the various branches of natural Science, his own predilection for them having been derived, as he acknowledges, from hearing Dr. Mitchell's first effort at the Lavoisierian Chemistry, and Dr. Hossack's earliest essay in Botany. He was moreover about this time a fellow student of the distinguished Washington Irving. Having been stripped by the vilest fraud of an extensive landed estate, he was induced to resort to Science for a living, and being invited to introduce the study of natural history into different colleges throughout New England, he was successively engaged at Williams and Amherst Colleges, in Massachusetts—Middlebury and the Medical College of Vermont, and numerous other literary institutions, until finally he was employed permanently by the Hon. Stephen Van Rensselaer, to conduct the experimental school which that gentleman had munificently founded a

*Henry A. Griswold, A. M. Professor of Mathematics &c. in the Eclectic Institute of Lexington.

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Troy, in New-York, of which Institution Professor Eaton is now the principal.

At Katskill, in the state of New-York, his fifth son, the subject of our present memoir, was born on the 21st of July 1809. He attended a common school in that place and in Chatham, where he was engaged in the ordinary manner in acquiring the rudiments of a common English education, until about the year 1818, when his father having removed to Albany, was engaged to deliver a course of lectures to the members of the Legislature, in the rooms of the Capitol, on Chemistry and Geology, as applicable to agriculture. Here, though but in his 9th year, the fancy of the son took fire at the chemical experiments and geological demonstrations, and he now first began to collect fragments of rocks and to ask their names. In the following year (1819) we find our young naturalist assisting his elder brothers in the collection of plants for the illustration of the lectures of their father. They carefully labelled and preserved duplicates. They studied together minerals, rocks and insects, and sedulously preserved specimens of all they could collect. In this employment, together with a devotion of part of their time to the more usual elementary branches of education, the brothers continued until the spring of 1823, when the father being called, as before mentioned, to Amherst College in Massachusetts, took with him his son Hulbert as his assistant in Chemistry, Mineralogy and Botany. Though only in his fourteenth year, he was the chief manipulator for this course in Chemistry—he labelled plants and minerals for the students, scarcely one of whom was so young as himself, and in every way discharged his duties to the entire satisfaction of a fond father, and the admiration of the class.

In the summer of the same year (1823) he acted in the same capacity, as assistant to his father, in a course on some of the branches of natural history, at Middlebury College in the state of Vermont; and in the autumn of that year he accompanied his father on a geological tour of three thousand miles, over the western parts of the state of New-York, and

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some portions of Massachusetts. This afforded him a rare opportunity, under the kind auspices of an able instructor, greatly to extend and enlarge his acquirements in geology and mineralogy. In the winter of the same year, he turned that knowledge to profitable account in the assistance which he rendered to his father in a course of Lectures delivered by him in the Medical College of Vermont, on Chemistry, Natural Philosophy, Zoology and Botany.

In 1824 the Rensselaer school was established—Professor Eaton was appointed to the superintendence of it, and to the interest and advancement of this institution have his labours since been exclusively restricted. Young Eaton entered among the first students of this institution. The intellectual discipline to which he was here subjected resembled that of his previous life. In the words of its founder, the object of the school was "to furnish instruction in the application of science to the common purposes of life." All parts of the plan were strictly practical. In every exercise the pupil was made to take the place of the teacher. He became the lecturer, performing himself the experiments necessary to illustrate and prove the truths of Chemistry and Natural Philosophy. In like manner he was taught to visit workshops and manufactories, to scrutinize the application of scientific principles and to imitate their results in the laboratory. In such a school we may readily suppose that our young friend was perfectly at home—that although nominally a pupil, he was also an instructor, and that acting upon the sound principle, *qui docet docetur*, whilst communicating information to those less favoured than himself, he was constantly adding to his own store of knowledge. Such time, moreover, as was not necessarily employed within the walls of the Institute was industriously devoted to collecting and analyzing subjects in natural history.

In April 1826 he took the Rensselaer degree of Bachelor of Arts, and in the following summer he delivered, unaided and alone, two several courses of experimental lectures on Chemistry, at Black Rock and Rochester; and in the winter

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one on the same branch of science, in the Female Academy in Canandaigua. In the winter of 1828, when only in his 19th year, we follow our youthful lecturer to a more extended field, where we find him boldly venturing upon a broader arena, and in the literary and scientific circle of Boston, delivering a course on chemistry before the Mechanics Institute, of which a distinguished literary gentleman of that city was president. In this manner he was taught betimes one of the most important and difficult of all lessons—how to act by himself—a lesson absolutely necessary for a life of efficiency and usefulness.

On his return from Boston a highly flattering testimonial of his acquirements was conferred upon him, by his election to a Junior Professorship in the Rensselaer school, in the place of Dr. L. C. Beck, who had resigned it for a situation in the Medical College of Vermont. Having now become a colleague with his father, and being elevated to an honorable post in the halls of his alma mater, the young professor took great pains to improve himself in extemporaneous lecturing—in general literature—in practical mathematics, and especially in extending the bounds of his knowledge in all the natural sciences.

He did not, however, long remain in this situation, for in the autumn of 1829, at the invitation of the Rev. Benjamin O. Peers of this city, he was induced to turn his thoughts towards the west, with the view of making it the theatre of his future action. In adopting this movement he was no doubt influenced in a great degree, by a conscientious persuasion of duty, and a philanthropic reference to the wants of the West, where he was well assured that in his vocation of Instructor, his labors would be rendered more extensively useful. He was certainly influenced too, in no small degree, by an eager desire to explore the natural productions of this comparatively unknown region; and his youthful heart beat high within his bosom, as the extended and boundless valley of the Mississippi opened before him, rich in promise of many a joyful—many a profitable hour spent in the exploration of

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its treasures—its hills and its dales—its mines and its minerals—its cliffs and its cataracts—its rivers and its lakes—their fishes and their shells—its trees—its shrubs and herbs—its quadrupeds—its birds and its insects. Fired by inducements of this sort the decision was speedily taken and as promptly acted on. Leaving then his paternal roof, and throwing himself on his own resources, he arrived at Lexington early in the winter, and immediately associated himself with Mr. Peers in the management of the school founded by that gentleman, and since known as the Eclectic Institute.

Without some account of the success of Mr. Peers and Mr. Eaton in their philanthropic enterprise, a notice like the present would be very incomplete. Few and unimportant to the public, were the events of his previous life, but the result of this experiment we believe, to be of incalculably more importance to the world, than the achievements of many lives prolonged in years and exalted in public estimation. It was a demonstration that earliest childhood is the proper period for commencing the acquisition of the most useful of all knowledge—the knowledge of things; or rather that the educator, when he receives from the hand of nature, the young mind provided with language and perfect senses, should contrive to employ, as she had done from the first opening of the infant's eyes, those ready ministers of improvement. It was a demonstration that by a philosophic method of instruction, boys of an early age, may know more of the great facts of chemical and mechanical philosophy—more of the organization and productions of the vegetable, animal and mineral kingdoms—more of the growth, manufactures, properties and uses of the objects amid which they live and move, than is known by most men on their entrance into active life. The method of teaching pursued in attaining these results was the peculiar method of the Rensselaer school. There, however, it was employed only with matured minds. Mr. Eaton was the first to make trial of it with boys. In lecturing to them he was remarkable for the clearness with which he

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presented scientific truth to the young understanding. All truth, indeed, is simple, and, when properly presented to the mind of young or old, it requires no more effort of comprehension than the fact that one and one are two. In the analysis and simplification and illustration of it to the senses, lies the great secret of the teacher; and in that secret was Mr. Eaton deeply versed. By means of it his classes of boys, especially in Chemistry, were enabled to display a knowledge of the subject that produced general astonishment.

To qualify himself yet the more thoroughly for the important duties now devolved upon him, he availed himself of every opportunity afforded him from the labours of teaching others in still further teaching himself. He prosecuted with great industry and earnestness the study of the natural history of this immediate neighborhood, and of the surrounding country, so far as opportunities were offered him for exploring it. During these excursions it was my happy privilege to be his frequent companion, and truly can I bear witness to the amiability of his manner—the instructiveness of his intercourse—the ardor and enthusiasm of his devotion to nature—his admiration of her beauties—his untiring industry in the laborious pursuit of her objects—his patient examination of them—the acumen of his discernment—the accuracy of his deductions—the lucidness of his description—his careful and pains-taking preservation of every thing collected.

One of the most lengthened of these excursions was made in the fall of 1830, and extended one hundred miles north of Lexington. In this tour, which was made chiefly on foot, many interesting objects were examined and considerable collections made. At the Big-bone-lick—that immense—amazing charnel house of extinct and yet existing animals—our friend enjoyed himself superlatively, in examining the different localities of these osseous deposits, and judging for himself of the probable causes which could have congregated into one spot, such masses of the skeletons of the mastodons —the antediluvian horse—the elk—the buffalo—the deer

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and other animals. In this cemetry of ages long gone by, he gathered many interesting relics; and among the debris of disinterments scattered in profusion around, where the man of science has dug for the sake of science, and the man of mammon for money, our young friend collected several hundred pounds of bones thrown aside by less scientific collectors as valueless. In patiently investigating as far as they could be ascertained, all the circumstances of this odd and interesting spot, he was led definitively to embrace the opinion of those who contend, that the skeletons of the mammoth and other extinct animals, have been buried in this and other analogous situations by fortuitous currents of the great deluge; and to reject the idea of those who suppose that these huge monsters were congregated there by the search for salt water—in the pursuit of which they became entrapped in the morass, where their giant bodies sinking beneath its surface have laid buried for ages.

One little occurrence may serve to show the ardent and enthusiastic manner with which he embraced every opportunity, and employed every moment for extending his knowledge, and enlarging his collections in natural history. On the excursion to which I have just referred we visited the Ohio and Great Miami rivers, chiefly for the purpose of examining and collecting their shells. The time was a most propitious one for such investigations, for the season having been unusually dry the waters of those fine streams were low, and consequently afforded an easy access to the shell-fish which inhabit them; and of these some rare, and many interesting species were found. On one particular occasion when exploring the treasures of the Miami, some diversity in our objects parted us for an hour, when returning to the quarter where I had left Mr. Eaton, I saw him wading deep in the water—his pockets strutted out with their contents—his arms scarcely able to grasp their collections—his countenance brightened with joy, he exclaimed, "Surely my friend this cannot be reality—I must be dreaming!"

The result of this excursion was published in the 4th vo-

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lume of the "Transylvania Journal of Medicine," under the title of "Notices of Western Botany and Conchology:" and this paper has been favorably mentioned in some of the Eastern Journals of Science—especially that part of the communication relating to the shells that were gathered, which was exclusively the work of Mr. Eaton.

The next year brought with it an important epoch in the life of our young friend. At the close of the session in the Medical Department of this school, in the spring of 1831, the Chemical chair was left vacant by the resignation of its incumbent, and promptly filled again by the appointment of his successor. Mr. Eaton's preeminent attainments had already attracted the attention of the friends and members of this institution, and at the recommendation of the faculty he was unanimously elected by the trustees Assistant Professor of Chemistry. For one so young this was high honor. He was placed by it in a conspicuous and responsible situation, and he immediately resolved to labor and to study for the enlargement and completion of the means of chemical instruction in this department. Owing to the absence of his colleague it became his duty to make the necessary arrangements and preparations for the lectures of the ensuing winter. He visited the eastern cities for the purpose of procuring apparatus, re-agents, and other means, as well as to examine the construction and fixtures of the best laboratories. How greatly that of this school was improved in point of convenience, utility and arrangement by the information and materials furnished by this visit, I need not here insist on. The session commenced with a large, a highly respectable and intelligent class. The exertions of the assistant professor were unremitted in the preparation and arrangement of the matters called for by each day's lecture; and in the performance of the experiments for their illustration, he was signally adroit and invariably successful.

Through the urbanity of his colleague the subject of Electricity was given up to him entirely, and on this important elementary matter of the science, he delivered a number of

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highly interesting and instructive lectures, illustrated by apt and brilliant experiments. His efforts, indeed, throughout the entire term gave universal satisfaction to his colleagues and the class; and contributed not a little to the success and popularity of his department.

During the winter he was married to a lady of this city to whom he had been long and devotedly attached. His prospects were now eminently enviable. No young man in the west—perhaps not one in the union—had better reason than he, to look forward to a life of honorable usefulness—preeminent distinction, and domestic happiness. With enthusiastic feelings he not only studied how to discharge the varied and responsible duties assumed by him, but also to promote to the utmost of his abilities the cause of that science, ever near to his heart—the cause of natural science in this portion of our country. In the hope of awakening the attention and interest of the medical class to the value of this kind of knowledge, and thus sending to every corner of our valley a number of active votaries to make observations and collect specimens, he resolved to give them a number of additional lectures, on the outlines and classification of the several branches of natural history. The execution of this project was but just commenced, when he was arrested in his labors by a hæmorrhage from the lungs. By this visitation, alarming at its onset. he was confined to the house until the termination of the session: but by the first of April he had so far recovered as to be enabled to resume his studies, and attend to some of his duties, though in a feeble and exhausted condition. His health, however, rapidly improved, under exercise and regimen, and before the end of the month he was so far restored as to be able to take lengthened excursions on foot, in pursuit of his favorite objects. Again

> ——— "with fresh born vigor he inhaled
> The balmy breeze, and felt the blessed sun
> Warm at his bosom, from the springs of life,
> Chasing oppressive damps and languid pain."

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Again with the rapture known only to the naturalist, he witnessed the first evolutions of approaching spring—again the song of birds chirping from bough to bough delighted his ear—again was his eye charmed by the anemone and the violet, bursting from their sleep of winter—again were his senses regaled with the vernal odours of the hyacinth, the lilac and the rose; and oft ascended from his honest heart thankful adorations to the giver of all good, for health restored and happiness in prospect.

His friends were now flattered with the hope of his perfect and permanent recovery; and he returned with his accustomed zeal to his varied scientific pursuits. Among these, he was engaged in preparing for the press a work on the ornithology of this neighbourhood, intended as a manual for the student in that branch of natural history: a large portion of this work was already printed, and the examination of subjects, and preparation of materials for the remainder required a considerable amount of bodily as well as mental exertion. In addition to these labors—perhaps too great for his yet delicate condition—he had resumed the duties of teaching and lecturing at the Institute; when, about the 1st of May, a repetition of the bleeding seized him. It was the summons of death! Vain were now the efforts of his skillful physician; vain the untiring, unremitted assiduities of a devoted wife; vain the anxious solicitude of his numerous friends. It became too soon manifest that the canker which healeth not was rankling in his bosom, slowly doing its fatal work but certain to effect it. And although for a while, with that strange delusion, so characteristic of his disease, he still cherished hopes of life and usefulness, yet when his failing strength and his extenuated frame convinced him that his days were numbered, the better resolution was taken; and in the full possession of his intellectual powers, he turned away from his schemes, and hopes, and generous ambition, to prepare for his end.—He died on 16th of August (1832) in the 23d year of his age.

Never was the ruling passion strong in death more striking.

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ly revealed, than in the dissolution of our friend; for in the last moments of his existence—in the delirium of expiring mortality—he fancied himself amidst flowery fields, and called upon his friends to participate in these pleasures with him. He died as he had lived, an ardent admirer of the works of nature, and with full, unwavering reliance on the goodness and mercy of nature's God.

Mr. Eaton's character as a man of science, corresponded to his education. Of his ripe judgement and accuracy of observation, he gave ample proofs in the few papers published by him on matters of natural history. Professor Amos Eaton's Manual of Botany, decidedly the most popular work on this branch of science which has ever appeared in America, received in its 5th edition, material emendations from the hand of his son; who, with the assistance of another pupil* of the Rensselaer school, revised the entire work for the press. His posthumous production on the birds of Kentucky, had he been spared to complete it, would doubtless have proved a valuable acquisition in this department of natural history; and it reflects no small degree of reputation on the character of our colleague, that he should have plumed a wing for venturing a flight over that field of science, which had been enriched by the labours and adorned by the splendid productions of Wilson, of Bonaparte, and Audubon. Mr. Eaton had been elected a member of the Academy of Natural Sciences of Philadelphia, and I believe also of the Lyceum of Natural History of New-York. He was in habits of intimacy and correspondence with many of the first natu-

* "It is proper for me to state, that Dr. William Akin, of Rensselaer school, and Hez. H. Eaton, adjunct professor in the school, prepared the species, after the genus Carex. I assisted no farther than to supervise the work. I decided in doubtful cases, compared their translations with the original authors, examined the proof-sheets, and gave all the new specific names. But they selected, arranged, compared, and transcribed the whole. They compared descriptions with plants in their extensive collections, and suggested numerous valuable improvements." *Prof. A. Eaton's remarks at the close of the 5th edition of his Manual of Botany: May* 13, 1829.

The public will be gratified to learn that a 6th edition of this valuable Manual is now in press, under the immediate supervision of its author, which will embody all the additions to the American Flora down to the present time. S.

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ralists of our country; among whom Professor Torrey, the Linnæus of America, was his intimate friend.

Has his life been in vain? Though removed when his prospects were the most cheering and our hopes the most confident, he lived long enough to prove how rich, and various, and useful, may be the acquisitions of years so rarely devoted to science. And perhaps this moral is impressed more strongly on our minds, than if the achievement of riper years had been allowed to outshine the accomplishments of his youth; for his were not the ephemeral corruscations of precocious youth, soon to be obscured in a manhood of humble mediocrity, but the well-earned and lasting attainments of diligence and zeal, increasing with his days and growing with his years. Such attainments as the most of us may acquire, with the same amount of patient study, and laborious research. Let each one of us, then, gentlemen, be instigated by the bright example of our departed friend, and whilst we mourn the loss of one so highly accomplished, so deservedly esteemed, let us determine to follow in his footsteps until we arrive at the same goal of honour and usefulness.

ART. III.—*Remarks on Spasmodic Cholera.* By JOHN ESTEN COOKE, M. D.

NO DISEASE has attracted so much of the public attention in America, within the present century, as the Cholera, except perhaps the winter epidemic, called in many places the typhus fever, of 1812 to 1815. The alarming manner in which it arrests its victims, the rapidity with which it runs its course, and the striking symptoms which accompany the death of the patient, fasten on the minds of those who witness them, and produce a strong sense of the uncertainty of life; and the important questions, What is the cause of this

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terrible disease? and What is the best way of treating it? are continually proposed to those who are supposed capable of giving satisfactory answers. In a preceding volume of this journal the writer endeavoured to show that this disease arises in the same combination of circumstances which gives rise to our ordinary autumnal diseases.* This conclusion was drawn from the facts stated in the account of its appearance in various places in the neighbourhood of the Caspian sea, and on various rivers which empty into it.

It appears that the disease commenced in 1830, in June, at a port at the southern extremity of that sea, and appeared at different points of the coast farther and farther north as the summer advanced, and broke out at its northern extremity, at Astrachan, situated at the mouth of the river Volga, in the latter end of July, six hundred miles from the port at which it commenced in June; and that it appeared at different points on the Volga and its branches, still more and more north *as the summer advanced*, commencing at Moscow in the middle of September.† The whole country around the Caspian sea is very flat and marshy, as well as the region through which the Volga flows. The disease was not a stranger in this region. It had appeared several times before 1820 at Astrachan. In the summer of 1829 it prevailed at a number of places on the Volga, and other rivers, and the manner of its prevalence, according to some of the statements, strikingly resembled that of autumnal fever. Thus at Orenburg, on one of the rivers emptying into the northern end of the Caspian sea, the cholera appeared on the 20th of August. It increased slowly for a fortnight, but after the 9th of September more rapidly. From the 9th to the 25th of September there were fifty-seven cases; from the 25th to the 30th, seventy-five cases; from October 1st to the 21st, six hundred and fifteen cases; from October 21st to November 20th, three hundred and fifty-three cases; when it ceased entirely. This accords very much with the manner in which a common

*See Remarks, Vol. iv, p. 425. †Ibid. Vol. iv, pp. 431—432.

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autumnal fever arises, increases and declines. The district of country about Orenburg in which the disease prevailed, was about two hundred and forty miles by two hundred in extent. It commenced, as above stated, in the latter part of August, and by the 23d November it was every where extinct. This is stated in the same sentence in which it is said that the disease continued in some places as late as the 6th of February*—which shows that there was very little of it after cold weather appeared. In this particular, its continuance in some places after cold weather, this disease is on the same footing with all the autumnal diseases; cases of which not unfrequently occur in considerable numbers in winter.† For a more particular account of the prevalence of cholera in that region, the reader is referred to the remarks in the 4th volume of this journal.‡ The conclusion drawn from the facts thus stated, that it appears and prevails in the same circumstances with autumnal fever, is most amply supported by a profusion of testimony on our own continent.

During the past summer it has prevailed at various places in which the different forms of autumnal disease annually appear—and those cities which have been frequently ravaged by the severest autumnal epidemics, have this summer and autumn suffered from cholera—and those parts of these cities which suffered most from the former, have experienced most from the latter. The reports of a number of physicians who visited the places afflicted in order to ascertain the cause of the disease, afford evidence that it arose in low, filthy and damp places, precisely in such circumstances as are most favorable to the production of fever. In Montreal the part of the city most afflicted was extraordinarily dirty, and low and wet; and one of the statements represents the appearance of cholera as a common occurrence in that town. In the city of New-York, the low, wet and dirty parts of the town, where the yellow fever formerly raged, were most

*Ibid. p. 431. †See Leghorn's Dis. of Minorca, pp. 238, 242.
‡Ibid. p. 425, &c. Rush's Acct. of the fevers of Phil. 1794–5, &c.

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afflicted. Philadelphia, Baltimore, Washington City, Alexandria and Norfolk, all of which places formerly suffered from yellow fever, and often from severe autumnal fevers, were afflicted with cholera; and the latest accounts represent the mortality as very great in the towns on the Mississippi.

The disease has also appeared along the rivers, on the canals, and at many places near small streams and ponds. The steam-boats on the western waters have suffered severely. It is stated that some have lost near thirty persons in running from below to the upper country; and that as many as three have died in the short run from Cincinnati to Louisville. Many boats on this account were laid up.

In passing through a part of Virginia in which autumnal fevers are frequent and severe, the writer found that the cholera had made its appearance in places well adapted to the production of the former. On the canal near Harper's Ferry, on the Maryland side of the Potomac river, a considerable number of deaths had occurred from cholera. At Halltown, a very small village on a sluggish stream in the rich low grounds of the Shenandoah, the disease had taken off a number of persons; as many as five in one house, the garden of which extended down to the banks of the stream. At Leesburg also, and in its neighbourhood, on Goose-creek, there were several cases.

These facts show that the disease appears in places suitable to the production of autumnal fever, while its appearance at the very season in which the latter prevails, shows that the one arises in the same combination of circumstances that give rise to the other.

The common cholera is one of the forms of autumnal disease, all of which arise, prevail and decline, under the influence of the very same circumstances. Not only do they arise and decline together, but one form of autumnal disease may and often does, spontaneously, change into another; and all of them can readily be made to assume one form by proper treatment. Thus, diarrhœa, dysentery, or cholera, may easily be made to assume one form, in which the patient is

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discharging bilious matter daily, and the distinctive signs are so entirely lost, that no one can distinguish the patient who commenced with cholera from him whose first symptoms were dysenteric; nor either from him who had no other symptoms from the beginning but those of bilious fever.

The appearance of these different forms of autumnal disease under the influence of the same kind of weather, has been long observed, as well as their changing from one to another, in the same illness. Cleghorn says, "About the time when the tertians begin, the *Cholera Morbus*, Rash, and Essere, become frequent and epidemical in a lesser degree." After mentioning also diarrhœas, dysenteries, and tenesmus, he says, "There seems to be a near alliance amongst all the diseases above mentioned. Those who have the rash or essere, to a great degree, are very liable to tertian fevers; on the other hand, in the paroxysms of tertians, these cutaneous eruptions are apt to break out. The *Cholera Morbus* sometimes hath its regular periods like a tertian, as the paroxysms of tertians are frequently attended with a cholera. Sometimes a tertian is changed into a dysentery; or a dysentery becomes a tertian; and when one of these diseases is suppressed, the other often ensues;" &c.* He says, "June was scarce ended when the tertian fevers and cholera morbus began; and increasing daily according to custom, came to their greatest degree of frequency in September; from which time they gradually declined, and seldom appeared after the winter solstice."† This was in 1745. In 1747, he says, "The extraordinary heat of May ushered in the summer diseases somewhat sooner than usual. For about the end of that month the cholera morbus carried off many children, and in June the tertians became universal. Besides, towards the end of June, the diarrhœa, dysentery, and tenesmus, broke out and raged violently for some weeks."‡

It is evident from these considerations that cholera is a form of autumnal disease dependant upon the same circum-

*Cleghorn's Diseases of Minorca, p. 123, and 158. †Ibid. p. 127. ‡Ibid. p. 130.

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stances, and therefore produced by the same cause as autumnal fevers. In the past summer and fall cholera has been uncommonly prevalent through the country; and preceded that grade which has been called spasmodic cholera, in places in which the latter made its appearance; showing the presence of the cause which commonly produces cholera and other forms of autumnal disease, in the very places in which spasmodic cholera appeared. The cases of cholera, moreover, for weeks before the appearance of spasms, were remarked to be very severe, and to require uncommon efforts to save the patient; and when at length the cases of cholera with spasms did occur, it was found impossible to distinguish in the commencement between those cases in which spasms afterwards appeared and those in which they did not. And as when the proper mode of treatment is adopted in the commencement, spasms do not appear, there is ground to conclude that the appearance or non-appearance of spasms, in severe cases, depends upon the treatment, and not upon any difference in the nature of the different cases.

The identity of the spasmodic cholera with that which is commonly unattended by spasms, is further shown by the fact, that the former when arrested in its cousse by the use of calomel, like the latter is converted into a bilious fever: that is to say, that the patient, in those cases in which there is every reason to believe that he is rapidly advancing to the spasmodic state, and even in those in which spasms have occurred, by the simple change of the passages from a thin and light coloured or transparent fluid to a green or black viscid substance, produced by calomel, often by a single dose, is placed in the condition of a person in ordinary autumnal fever; insomuch that the two cases cannot be distinguished by a person who sees them for the first time after the patient in cholera has been brought into the state spoken of; and the one has as good a chance for ultimate recovery as the other.

It may be alleged that the spasmodic cholera seizes the patient in some cases, without the least warning. This however cannot be received as true without clear testimony, and

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there is good reason, in the very nature of the affection, to believe that no person can arrive at such a pitch of disease without such previous symptoms as plainly mark a state of congestion, which is certainly present in every case of cholera. It is certain that of those who have been equally exposed to the cause of cholera, some have had the diarrhœa,—which has been called a premonitory symptom, but which is more properly a symptom of the disease itself—while others have had fulness of the head, numbness of the hands, and other symptoms indicative of the operation of congestion on the brain. The former is of so marked a character that it is not easily mistaken—while the latter are easily confounded with uneasy feelings, frequently experienced. When therefore the former appear, the patient is said to have premonitory symptoms; but when they do not, though the latter are present, he is said to be without them.

It may be supposed that the state of collapse in cholera makes an essential difference. The writer has not been able to perceive any difference between this state of the patient, in this disease, and the state of one who is dying of congestive bilious fever—that is, autumnal fever in which the congestion is so great and the condition of the patient so prostrated, that he cannot be relieved from the one, or roused from the other.

It has been said that the spasmodic cholera appears in all places and seasons, without regard to situation or weather. This is certainly not the fact. It has appeared in cold weather, in some places: but warm weather is the time in which it almost universally prevails. In Moscow it is stated to have prevailed in the winter: but as above stated, it commenced in that city in September. Its occasional prevalence in the winter, is, however, no objection to the doctrine, that the agent which causes it is produced in warm weather. The same may be said of the common autumnal fever, and of every epidemic disease which depends upon hot weather for its origin. The epidemic disease which formerly ravaged Europe, then called the plague, almost uniformly commenced in

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warm weather, increased with the increasing heat of the season, was most severe in hot dry summers in the moist countries of England and Holland, and declined at the approach of winter.* And yet this disease occasionally prevailed in winter. Cleghorn in his account of the diseases of Minorca, after attributing the fevers of that island to the hot weather, and the uncommonly early appearance of the fevers in 1747 to the uncommon heat of the month of May, says that the same fevers appeared in winter.† Dr. Rush mentions that the severe autumnal fevers of Philadelphia sometimes appeared in the winter. And every practitioner of experience in this country has met with fevers in the winter not to be distinguished from those which he treated in the preceding fall. It is evident therefore that the occurrence of cholera sometimes in winter, is no objection to this disease being produced by the same cause which produces autumnal fever.

As to its appearance in mountainous regions, there is no testimony for it known to the writer. An attempt was made to show that the disease was carried to Orenburg from some towns on the sea of Aral in Asia, by the caravans which passed thence to the former city. The route lay through the mountains of Persia, but it could not be shown that the disease had existed in this mountainous country. The disease appeared at Tifflis in Georgia, which is high up in the country from the Caspian sea, but it is situated on a river—and when it was prevailing to a very serious extent in this city, the inhabitants retired to the neighbouring high grounds, and the disease soon ceased among them.

It is sometimes asked, if the same cause produces both bilious fever and spasmodic cholera, why should the latter prevail more especially at the present time, and so generally? Whatever force there is in this objection, operates just as much against the doctrine that the other forms of autumnal disease are all produced by the same cause. We conclude

*See a paper on this subject in the 3d Vol. of this Journal, p. 553.
†Dis. of Minorca, Chap. vi, p, 238; 2d edition, London.

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that intermittents and remittents, dysentery, diarrhœa, and cholera are all the offspring of the same deleterious agent, for three reasons. The first is, they all appear in the same season, are aggravated by increase of temperature, and decline in moderate, and cease for the most part in cold weather. The second is, that those who are exposed to the same combination of circumstances, to the same marsh air, or even to the foul air produced in the narrow compass of a ship's hold, experience the different forms mentioned; some having one and some another, and sometimes every form which can be mentioned being at once exhibited in a single ship's crew. The third is, that while these different forms are prevailing, the same individual is often affected first with one and then with another of them. Thus one will have a remittent; and afterwards an intermittent; and finally perhaps dysentery; or the reverse. And some may commence with cholera and end with fever, and the reverse. These things are unquestionable, and have long been observed and recorded by medical writers of the most established credit.* Dr. Cullen argues in the following manner, for theidentity of remittent and intermittent fevers. "For those which are called remittents, arise from the same origin as intermittents, viz. marsh miasmata; both rage together epidemically, in the same places, and at the same time of the year; both are cured entirely by the same remedies; and very often the self-same disease which is seen in the same man, one while exhibits the form of an intermittent, another while of a remittent. These diseases, therefore, being perfectly alike in their cause, in the cure, and in their form, are not to be separated under different orders or sections."†

Dr. Pringle uses the same argument to show that fevers and dysentery are of like nature. He says, "The bilious disorders begin about the decline of summer, and become epidemic in autumn, appearing earlier and more general,

*See Cleghorn's Dis. of the Island of Minorca, the whole 2d chapter: also Chap. iii, p. 158.

†Cullen Synop. Tom. 2, p. 46.

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and with worse symptoms, in proportion to the heat of the season, and to the moisture of the ground and climate. Although of different forms, they are of a like nature, and may be reduced to two heads, viz. fevers and fluxes."—"The heat and moisture of the air appear to be no less the chief remote and external cause of the dysentery, than of the autumnal remitting and intermitting fevers," &c.—"Hitherto we have seen how similar the causes are of the remitting and intermitting fevers, and of the bloody flux. Nay, the affinity extends even to the occasional or exciting causes. For in the end of summer, or in autumn, when any number of men are exposed to night damps and fogs, especially after a hot day, or lie upon wet ground, or in wet clothes, part of them will be seized with that kind of fever, and part with this flux; and perhaps a third sort will have a disorder compounded of both. Add to this, that those fevers begin to be frequent in camp whilst the dysentery still subsists; that the first symptoms are often similar, such as the rigors and disorders of the stomach; that the remitting and intermitting fevers of a more malignant kind have sometimes ended in a bloody flux; that such countries as are most subject to these autumnal fevers, are likewise most liable to the dysentery; and that the analogy continues even as to the method of cure, in so far as the principal part of it consists in clearing the primæ viæ. Upon the whole, the nature of the two distempers appears so much alike, that at first sight Sydenham seems to have expressed himself justly, when he called this flux, 'the fever of the season turned upon the bowels.'"* The sole difficulty in the way of his yielding his entire assent to this conclusion of his own argument, was the erroneous opinion that dysentery is contagious. This not being in our way, we must conclude with Sydenham, and with Pringle, but for this error, that they are the same disease, differing only in unessential particulars.

The passage already quoted from Cleghorn shows that the cholera also arises in the same circumstances with fever and

*Pringle's Dis. of the Army, Part III, Ch. iv, and Ch. vi, § 3.

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dysentery, and that the same patient at different periods of the same attack has the symptoms of the different forms, and by the same mode of argument we arrive at the same conclusion, that this also is the same disease differing only in unessential particulars. The same is equally true of spasmodic cholera. The latter, it has been shown, arises in the same circumstances with autumnal epidemics, and is convertible into bilious fever. This rests not on the observation of one alone. It has been observed by many. Dr. Brown, of Sunderland in England, where the spasmodic cholera was very fatal, says in a letter to Dr. James Johnson and Dr. Tweedie, "In this sketch of the general progress of disease, during the autumn, I have classed together things which, because differing in name, are by many supposed to be essentially different, cholera and fever. The relation between these two genera of disease, is as close as possible. If a man is attacked with vomiting, purging, and collapse, and succumbs to these symptoms, he is said to die of cholera; if the disorder of the system is eliminated, as it were, by the discharges from the intestinal canal, he is said to recover from it; but if neither of these events occur, his state becomes one of fever, not distinguishable from that affection unpreceded by choleric symptoms. The first case which Dr. Daun saw, on his arrival here, he said he could not distinguish from typhus, —the discharges had ceased, and it had passed into the febrile state."* This the writer has himself witnessed. A patient in cholera who is successfully treated, is frequently brought into a febrile state, and while he lies discharging bilious matter, his case cannot be distinguished, by any marks known to the writer, from a case of bilious fever.

This being the case, it is evident that the objection above stated, is as valid against the identity of any form of autumnal disease with the rest, as of spasmodic cholera. Though we are entirely convinced, from the identity of the cause of all of them, and from the identity of the morbid change

*See Dr. Brown's letter in Vol. IV, p. 573, of the Tran. Journal of Med. &c.

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wrought in the system, whereby they change from one to another in the same case, that they are all the same disease, differing only in unessential particulars, yet can we not say why in some years there are more intermittents than remittents, or in some years more dysenteries than fevers without dysenteric symptons, or in some more cases of cholera.

It has been very generally supposed that the symptoms of spasmodic cholera are peculiar. This however is not the case. There is not one, that the writer has seen or heard mentioned, which has not occurred in other forms of autumnal disease.

In all the forms of autumnal disease there exists congestion in the interior veins. In high grades of these diseases the congestion is very great. This interferes with the secretion of the liver and often entirely suppresses it. Absence of bilious discharges therefore is to be expected in all autumnal diseases of high grade, and is not by any means peculiar to spasmodic cholera.

Congestion cannot exist in such degree as to suppress the secretion of bile without at the same time more or less affecting that of urine. Hence the latter is high coloured and scanty in autumnal diseases generally, and is sometimes entirely or nearly suppressed. This therefore is not peculiar to spasmodic cholera.

The colourless discharges are not a rare occurrence. The writer has often had to contend with this symptom in autumnal fever. Cleghorn mentions it frequently in his account of the fevers of Minorca.*

The colliquative sweats, with extreme coldness of the surface, the writer has also seen in autumnal fever. Dr. Lucas of Alabama, in his account of the epidemic of 1820 in Brunswick county, Va. says, "There was not only no increase of heat of the skin in those attacked, but a preternatural coldness; a cold, clammy and profuse perspiration overspread the body; &c. many, feeling perfectly well, would be

*See pp. 146, 151, 157, 214, 294.

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attacked, and in a few hours, and sometimes in a few minutes, would be in the most extreme state of prostration, without evident causes."* In the autumnal season of 1821 similar symptoms occurred in the commencement of the attack, together with a purple hue, in the neighborhood of Centreville, near Alexandria, D. of Columbia, as I was then informed by Dr. Lane. Cleghorn also mentions colliquative sweats, with vomiting and purging in tertian fevers.† Many of the spasmodic twitches are very similar to subsultus tendinum, which is not an uncommon symptom, and the severer spasms have often occurred in autumnal fevers and diarrhœa.‡ The purple hue of the dying and the dead, partial or general, perhaps every man of experience has seen in the close of congestive fevers.

Holding these opinions, the writer has not seen any reason to depart from his ordinary mode of treating the disease. The first case of severe cholera he was called upon to treat during the past autumn, occurred about the last of August, or first of September. The patient was seized with vomiting in the night and next day was visited. He was then discharging from the stomach a thin, colourless fluid; and from the bowels thin yellowish passages. He took twenty grains of calomel, and in a short time after thirty more, and before night forty more. The next morning no change having been discovered in his discharges, he was bled, the pulse being full, and took sixty grains of calomel. This dose was given every five or six hours, until he had taken four such on the second day. Every dose was given by the writer himself, in consequence of observing no change in the discharges. On the third morning, he took the same quantity of calomel, and was bled a second time, the pulse being full. At 12 o'clock no change having occurred, or rather the discharges having become more colourless, he took the same

*See Med. Recorder, No. 19, p. 490. †Cleghorn's Dis. of Minorca, pp. 157, 158.

‡See Dr. Cartwright's account of the Epidemic of 1822, in Monro Co. Miss. in the 28th No. of the Med. Recorder, p. 668.

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dose. In the afternoon he was found discharging a fluid entirely transparent; showing that the calomel had not yet acted on the liver, so as to produce any visible effect. The writer had for many years relied on calomel alone to produce the desired effect of free secretion of bile. He had never before seen sixty grain doses fail, and believes he never saw any occasion to repeat the dose, the first having always accomplished the object.* In the present case it was obvious that this dose was insufficient, and by the same process of reasoning which had formerly led him to increase from twenty to thirty, to forty, and finally to sixty grains, he was now led to conclude that he must increase the quantity, or let the patient die. He was still warm enough, but looked badly, and his countenance shewed great anxiety. In this situation he took one hundred and twenty grains at once.

In the morning he was discharging thick black matter from the bowels. His stomach was perfectly quiet. He took sixty grains of calomel, and in the forenoon twenty small aloetic pills. These kept up a tolerably free discharge of black matter.

The next morning (the fifth) he took the same. The sixth he took the pills alone. The discharges having become rather light coloured, he took, on the seventh morning, the calomel again, sixty grains, and the same number of pills. On the eighth, the discharges being still thick and dark coloured, and quite copious, he took twelve pills without the calomel. On the ninth found him out of bed—gave him no medicine. On the tenth found him easy in his bowels, and with good appetite, and the same forenoon he was in the streets. He took no medicine but what is here mentioned. During the whole time, he took, at pleasure, ice in small bits, and thought it contributed greatly to check the disposition to vomit. He was not salivated in the slightest degree.

This case clearly indicates that the cause of cholera was acting with unusual force in the production of that disease.

*See Remarks on this subject in Vol. IV of Tran. Med. Jour. pp. 447, 448.

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Soon after the recovery of the patient, the writer went to the eastward, and on his return about the first of November, found that one or two deaths had occurred in Lexington with the symptoms of spasmodic cholera. There were five deaths only. The persons who died all lived or worked in the lower part of the town, or just out of town, on the borders of a small stream. The cases were clearly marked. The patient in the collapse appeared as if inclined to dose, and yet as sensible of his danger, and answering questions correctly —sometimes roused by the spasms, or by the necessity of discharging from the bowels—the fluid bore a strong resemblance to rice-water—he was cold, with little or no pulse, and of a bluish cast over the whole body. One of the five cases the writer was called to, and saw him about four or five hours before his death. He had had diarrhœa two or three days—and had had frequent discharges and severe spasms for ten hours before he was visited. It is no reproach to the medical profession not to save a dying man. There should be no more surprise at the great proportion of the deaths of those who never call for assistance till the last moment, in cholera, than in any other form of autumnal disease. And who would expect to cure a person in bilious fever who had allowed the disease to progress until his pulse was gone, and the coldness and purple hue of death had seized upon him? It being evident that little or nothing was to be done in cases in which the disease had progressed so far as in the above, an effort was made, and very successfully, to turn the attention of the citizens to the first symptoms of the complaint. Hand bills were circulated by public authority, throughout the city, containing advice as to the symptoms by which the first approach of the disease might be ascertained, and as to the proper treatment. This advice was furnished by different physicians of the city, by request of the public authorities. The following was sent by the writer in reply to that request, and was published together with advice received from other physicians.

"I have received your note requesting me to give you in

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writing my opinion in relation to "*the preventive treatment*" of the cholera. I take it for granted that you wish to have such information as will enable the public at large to judge of the approach of the disease, and to arrest its progress in any case in which its first symptoms may be observed.

"The first indications of the disease are, disordered state of the stomach and bowels and often of the head, frequently overlooked by the patient; as want of appetite, costiveness, some uneasiness in the stomach or bowels, and dizziness or uncomfortable feeling in the head. These are common, however, to every form of autumnal disease. They may all be removed by a mercurial cathartic; to be repeated, if, during the operation, the discharges from the bowels are observed to be green or dark coloured. The common pills of rhubarb, aloes and calomel, much used in town, will answer this end as well as any thing else.

"A further advance towards the cholera is the appearance of a looseness of the bowels in almost every case, not at all alarming to those who are not informed on the subject. This is the period of the disease in which the symptoms are so marked that the most uninformed can distinguish them; and it is the period in which medicine is sure to relieve, if given early.

"The tendency of the disease is to more and more loose discharges from the bowels, of a lighter and lighter colour, until they become transparent or whitish. The appearance at last is such that they have been called, very generally, rice-water discharges.

"The object of the patient should be to procure green or black discharges. If this be done he is safe. To effect this object, calomel alone has ever been my dependance: and I have never yet known it fail if given in due time and quantity.

"Every one who has a looseness of the bowels at this season ought to consider himself as tending towards cholera. If neglected, he knows not how soon it may increase to such extent as at once to prostrate him.—My opinion is that

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every person in this situation should take thirty grains of calomel at once. If the discharges do not become green or black in twelve hours, he should repeat the dose, and the same in the same case in twelve more. But generally the first will do. If so, the green or black discharges should be kept up for a few days, by the pills above mentioned. If however, after having taken the first or second dose of calomel, the looseness increases, he should increase the dose. It is best to double it, at once.

"The discharges are to be observed closely. Some have deceived themselves and their physician by calling that an operation of the calomel, which was the mere discharge common in the disease. The distinction is in the colour alone. It is never the effect of the calomel, unless green or dark.

"It is a common practice to add opium to the calomel. I am persuaded that the effect of this is often bad; and that it is never necessary in the loose state above spoken of—that is, never necessary in the "preventive treatment."

"As your inquiry is confined to "the preventive treatment," I say nothing of the advanced stages of the disease; and the rather because in such cases the attending physician will of course direct.

"If the Committee in their inquiry had more in view in their expression of "*preventive treatment*," than is supposed in these remarks, and looked to the conduct of persons in good health, it may be observed that the most powerful exciting causes of the disease are exposure to cold, to wet, great fatigue, late hours, intemperance in eating as well as drinking —and therefore that comfortable clothes, *warm feet*, keeping dry, avoiding excessive exertion of body or mind, retiring early to bed, and temperance in eating and drinking, are to be considered as preventives."

These directions the reader will observe were intended to call the attention of the public to the first obvious symptoms, which no man could mistake, and to suggest a remedy which would effectually control them. Independently of the advantage of arresting, by this means, many cases in the early

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stage of the disease, the attention of people was called to the true nature of the diarrhœa with which many were affected, and advice was sought without delay.

In these cases the patient was found generally to be discharging, sometimes very copiously, a thin yellow fluid from the bowels, without, for the most part, much uneasiness or nausea, and sometimes with some tendency to spasm. The object being to procure a free secretion of bile, calomel was resorted to as the best remedy. No effort was made by the writer to arrest the discharge by opium. Former experience had shown that less than sixty grains of calomel will seldom effect the purpose in ordinary cases of cholera, in this climate.* The experience of the present year, in the case above stated, had shown that this was not likely to be enough. The statements of physicians of high standing in Philadelphia, Washington City, &c. in their communications, indicated the same. They generally found themselves under the necessity of repeating the small doses they commenced with, until the patient had taken from sixty to one hundred and fifty grains in the day. Convinced, therefore, that ordinary doses would not be found sufficient, and urged by the fear of the increase of a disorder, the rapidity of whose course was not to be trifled with, the writer deemed it most adviseable to prescribe at once that quantity which it was likely the patient would be compelled to take in order to effect the object in view, a free discharge of bile from the bowels. He therefore directed in every case, except in one or two in which the patient was not pressed by the diarrhœa, one hundred and twenty grains of calomel at once. The effect of this quantity was in general to purge moderately, once or twice; the discharges being uniformly thick, and green or black. In some cases the effect was barely to arrest the diarrhœa. There was no further discharge for the whole day, and on the morning of the next, a dose of castor oil, or pills of rhubarb, aloes and calomel, as the patient pleased, being admin-

*See Vol. IV. p. 447.

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istered, green or black discharges followed. In some cases the patient would not take the whole advised, but preferred thirty, forty, or sixty grains. In these cases, perhaps in every one, the dose was repeated, sometimes more than once before a discharge was obtained, and the uneasiness and nausea continued, and sometimes was increased, as is not uncommon under the influence of insufficient doses. By repetition however, the object was effected, but it is believed never without the necessity of taking the full amount of the dose first recommended, and never so speedily and with such relief from the symptoms.

As soon as this first object was effected, the patient was found to be, as before stated, precisely in the condition of one in bilious fever discharging the same bilious matter, and the case was thereafter treated precisely in the same way. That is to say, he was purged every day with mercurial cathartics in such a manner as to procure bilious passages, until the discharges became natural in colour, consistence, &c. This was effected by the pills above mentioned, and in some cases, by ordinary doses of calomel followed by oil in such quantity as merely to carry off the bile, and not to purge actively.

The only case in which the patient was salivated under this treatment, was that of a young man who took a grain of opium with ten grains of calomel, a short time before the administration of the first dose above mentioned, of one hundred and twenty grains. In this case also, greater difficulty than common was experienced in moving the bowels day by day, after the discharges became bilious. The salivation was not very considerable, however. But this slowness of the bowels is so often the result of the use of opium, that, in the opinion of the writer, it is not adviseable to use it when it can be dispensed with. How far it may be necessary in the severe pain of the spasms, he will not pretend to decide, not having had a case in which the disease reached that stage, except the one mentioned above, which he saw but four or five hours before death, after the spasms had ceas-

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ed, and the patient was lying cold, blue, almost without pulse, and occasionally discharging the rice-water fluid. From the experience which he has had, however, (which at the same time he acknowledges to be comparatively small,) in the treatment of cases in that state in which without spasms of any consequence, the patient was purging freely, sometimes with vomiting, and sometimes vomiting without purging, he is entirely persuaded that it is, in such cases, unnecessary and injurious.

ART. IV.—*Notices of the Diseases of the Summer and Fall o* 1832. By LUNSFORD P. YANDELL, M. D.

DURING the present year a greater variety of disease than usual have prevailed in Lexington. Influenza and measles were epidemic in December and January, as mentioned in a former number of this work. In April three fatal cases of scarlet fever occurred in a family on Hill street; and in July and August this disease became general, attacking and killing many children here, and in the country and neighboring towns. A few adults also died of the complaint, with symptoms, in some cases, resembling cholera. It has not yet* entirely disappeared.

When the disease terminated fatally it did so generally in three days, and in most instances as the result of gangrene of the throat. Inflammation of the brain supervened in some cases.

The remedies which succeeded best in the treatment of the disease were emetics and calomel, preceded by blood letting where the arterial excitement was high. Ipecacuanha administered in such doses as excited vomiting, and repeat

*Dec. 1st.

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ed occasionally through the day, produced the best effects. The calomel was repeated from day to day, so as to keep up free purging. Cold water was applied to the head and face with the mitigation of fever and restlessness in some instances; and the tepid bath was used in a majority of cases with marked benefit. The usual stimulating gargles evidently increased the inflammation of the throat, and in some instances, probably, hastened mortification.

Towards the latter end of June a disposition to bowel complaints manifested itself among the citizens, and for several weeks almost every one complained of a want of appetite, indigestion, and other signs of gastric and intestinal derangement. In some instances vomiting attended, and such other symptoms as required medicine, but generally they yielded to abstinence and rest. Early in September these affections disappeared. They were generally regarded as precursors of cholera, which at the time was raging in New-York and elsewhere, and consequently occasioned much uneasiness.

During the prevalence of these complaints the weather was peculiar. In all the month of June it rained but twice. July was dry until the 20th, when there was a copious fall of rain. But during this whole period, and throughout the month of August, there was very little thunder and lightning. When rain came on, it was not preceded by the usual electrical phenomena. The clouds seemed dead, and though they frequently hung over us for days together, but little rain fell.

On the 9th of October Dr. Drake announced in the public newspapers that cholera had appeared in Cincinnati. At first it was discredited by the Sanitary Board and the citizens generally, but a few days removed all doubts. The disease spread with terrific rapidity, and in a short time was in every quarter of the city. It was attended with a fatality which had not been equalled in any part of our country, and in but few places in the world. "It attacked indiscriminately persons of all grades, temperaments and habits of life; and if the rich and temperate suffered less than the poor, the drunken and the exposed, it was not from any immunity

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against the disease, but from their more carefully watching its first approaches, and from the first stage being milder in its character, and of longer duration."*

On the 26th of October Dr. Drake writes, "Twenty-seven days have now elapsed since the onset of the pestilence, during which period the whole number of deaths, as far as it has been ascertained, is 351. The greatest number of deaths was from noon on the 19th to noon on the 20th, and amounted to 42, or one out of every six hundred inhabitants actually in the city at the time. Since that day, the mortality has slowly diminished."

About the same time the disease appeared in Louisville, but did not spread to the same extent, nor commit such ravages. It was confined to the banks of the Ohio, and the Bear-grass, (a creek which empties into the Ohio at this point,) not extending to the healthy portions of the city. In a letter to the writer, Dr. Declary remarks, "On Bear-grass, at the point where the Bardstown road crosses it, out of three families consisting of seventeen persons, nine fell victims to its ravages in a few days. At Farmington the seat of Judge Speed, I attended a number of his negroes and several white men under his employ. In the front of his house the ground was low and wet, through which a ditch had been cut. Upon the margin of this ditch a stable had been erected, but latterly this had been converted into a dwelling house for some of the work hands. Two dissipated labourers had occupied it, both of whom had diarrhœa, the first neglected himself and became the victim of cholera, the other soon followed. Two negroes who waited upon them as well as a young gentleman of the family, were seized, the two former of whom died. Three other deaths followed in the space of thirty-six hours; and a whole family of eighty persons, were more or less under a cholera predisposition, but were cured by timely attention. In Portland, near Louisville, its ravages were

*Western Journal of the Med. & Phys. Sciences, Vol. 6, p. 267.

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great. Along the river, and Bear-grass, in one or two points of the Pond settlement, its fatality was truly appalling."

The mortality in this city never became great, seven a day being about the average number of deaths reported by the Board of Health, while the disease was at its height.

The pestilence made its appearance in Frankfort about the 6th of November, and in a population not exceeding 2500, five died in the first forty-eight hours. The severity of the onset induced a belief that it would rage in that place with uncommon violence; but it abated almost at once, and disappeared in a few days without doing much farther mischief.

Lexington was visited by the disease about the same time. A negro died on the 6th with what was considered by his physicians cholera spasmodica. Other cases occurred on the 8th and 9th, of which two terminated fatally. On the morning of the 9th, William Hutchison, an engineer by trade, of laborious habits, but very poor, was attacked with diarrhœa immediately after breakfast. The morning was cold, and he had been exposed, after being heated over the engine, in thin clothing. After having had a number of very copious rice-water passages, he set out to get medical advice, and walked more than half a mile. He was ordered 20 grs. calomel, with a grain of opium, and to take to his bed. At 2 o'clock I saw him, when he seemed comfortable, having had but a few passages after taking the calomel, his skin being warm and moist, and the slight spasms, with which he had been seized, having left him. About an hour afterwards he had a most copious evacuation of dirty rice-water, after which he was greatly exhausted, and the spasms returned with increased violence. The discharges continued from his bowels, and when I visited him at 5 o'clock I found him in a state of collapse, with pulseless wrists, purple, cold skin, and complaining of blindness. Wine was administered freely, and calomel given in 60 grain doses, repeated at intervals of two hours, till 12 o'clock. His pulse was restored at his wrist, and the warmth of his skin returned. He died next morn-

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ing at 8 o'clock. One or two men died on this day and the next, when the disease abated. No fatal case occurred after the 11th, and in a few days even mild cases ceased to be presented. In all, but five persons died of the disease—two white men, and three negroes.

The pestilence has showed itself in most of the towns along the Ohio, from Pittsburg to the mouth, as well as in St. Louis, on the Mississippi, and has travelled down that river to New-Orleans, where the reported mortality has been truly appalling. As many as two hundred a day are said to have died for several days, out of a population not exceeding at this time forty thousand souls. The latest accounts state that the scourge is subsiding.

Such is a brief outline of this epidemic as it has appeared in the West.

1. The disease has appeared only in places favorable to the production of malaria, and in which bilious diseases occur. In Cincinnati, owing to the extensive inundation during the winter, it was predicted that the disease would make its appearance. In Louisville it confined itself to the banks of the river and the creek. Frankfort is situated in a deep valley, surrounded by hills, and immediately on the banks of the Kentucky river. In Lexington all the cases originated in one quarter; namely, near the margin of the small stream which runs through the city, into which all the sewers empty, and along which the rail road runs, the hands of which furnished two of the cases. Maysville is subjected to the same causes, in a milder degree, which operated so disastrously upon Cincinnati; and Vicksburg, Natchez, and New-Orleans are proverbially subject to bilious diseases.

2. It was preceded, remotely, in all places where it has appeared, by diarrhœa and other forms of gastric and intestinal derangement, and each individual attack followed in the wake of similar affections, continued for a longer or shorter period. These premonitory symptoms preceded every case that occurred here—in most instances, several days—in a few, but five or six hours. The same is said to have been

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the case in the neighboring cities where the pestilence has raged. And these symptoms were easily subdued. It rarely happened that those were attacked with spasms and the more aggravated symptoms of the disease, who took medicine shortly after being seized with diarrhœa. Taken in its *incipient* stage, (which the diarrhœa unquestionably is,) the experience of every place where it has appeared in America proves, it is cured with ease, and the utmost certainty. It is believed that one cause of the sudden and entire subsidence of the disease in this place, is to be found in the promptitude with which the citizens met and combatted these premonitory symptoms.

3. The treatment has not varied materially in any of the places where it has prevailed. The profession in the west, have relied upon calomel, emetics and blood-letting. Other remedies have been employed as auxiliary, and a few physicians may have adopted a different course, but these have constituted the leading articles in the plan of the most intelligent part of the profession. By some, calomel and bleeding have been relied on almost exclusively, while others have depended upon calomel and emetics, and a few upon calomel alone. External applications—warmth, blisters. &c. were used by all, in particular stages of the complaint.

Prof. Dudley generally gave emetics, and his experience was that they relieved the spasms, and recalled the pulse to the wrists, and restored heat to the surface. In some cases it was found necessary to give ipecac—the emetic employed —in very large doses to produce free vomiting.

4. With the appearance of cholera, it may be proper to remark, the bowel affections, which had been so general in the summer, but which had ceased on the approach of cold weather, returned, and were prevalent in every part of the city. But with this disease they also disappeared. A catarrhal fever has followed them, and scarlatina, after a partial subsidence has again broken out with perhaps as much violence as marked it during any time of the summer.

5. By the different practitioners of the city upwards of twen-

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ty cases of cholera were reported in the stage of collapse, of which five or six only terminated fatally. This was treating the pestilence with uncommon success. In most places where it has appeared, nearly all the first cases were fatal ones. The first ten or fifteen who were attacked in Cincinnati, all died. Such was the fate of the first sufferers in Louisville. And it will be believed, which is no doubt true, that our marked success is attributable to the mild character which the disease assumed in this place. It never spread—it never got firm footing. The few well marked cases which presented, were traceable to the same origin, and were brought on by the same imprudence or exposure, and rendered fatal by similar neglect. With timely attention, we have reason to believe, the fatal issue in every instance might have been prevented.

6. In one case which the writer attended, the premonitory symptoms terminated in bilious fever, which lasted two weeks.

7. Much additional light has been thrown upon the character of cholera during its progress through the United States. The belief in its contagion, which had at one time a strong hold on the mind of the profession, has been utterly subverted. The stage of collapse (which is in truth a *dying* state) continues to be as unmanageable, perhaps, as it proved in India, but the premonitory symptoms have come to be so well understood, and are so easily removed, that this hopeless state of things may generally be prevented. In conclusion, those places which are exempt from the sources of miasm, and experience little of bilious disease, have no great cause to apprehend the invasion of cholera, and when it has established itself in any place, the experience of the profession, now peculiarly full, may avail its citizens in mitigating its violence.

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ART. V.—*A Letter on the* CHOLERA *as it occurred in Cincinnati, Ohio, in the month of October* 1832. By JOHN F. HENRY, M. D. to Dr. Short, of Lexington, Ky.

(The following letter was written at the instance of a friend, who, upon the occurrence of the first case of Cholera in Lexington, addressed a note to Dr. Henry, desiring information on the subject of its prevalence in Cincinnati, and especially in relation to his treatment of it. The predictions of the writer as to its visit to Lexington, have been literally and most happily verified: not more than six cases altogether having occurred here, the majority of which were among the exposed labourers on the rail-road. The letter will be read with great interest by all who unfortunately have had much converse with the disease, or who may be in apprehension of its afflictions. S.)

CINCINNATI, *Nov.* 13*th*, 1832.

MY DEAR SIR:

YOUR note, informing me that Cholera had appeared in Lexington, has been received, and I embrace the earliest leisure to answer its inquiries. I cannot, however, suppose, that you will have much of the disease. Believing that its cause is identical with that of intermitting, remitting and malignant fevers, I can see nothing, in the medical topography of your highly favored city, to create a fear that it will be epidemic, or that you will even have many sporadic cases.

On the subject of this identity of cause, I hope you will indulge me in the statement of a few facts, and the deductions which flow from them, before I enter upon the immediate object of your inquiry—the "*treatment of the malady.*" I make no pretensions to a knowledge of the nature of that influence which produces disease, whether epidemic or endemic; nor can any good result from any opinion which, in the present state of science, we may entertain on this subject. Whether it be malarious, or animalcular, or neither, is to me, at this time, a matter of little concern. With this confession of ignorance, I nevertheless contend, that cholera and autumnal diseases have the same origin; delight in the

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same localities; advance *pari passu;* exhibit many of the same symptoms; and are cured by the same remedies.

Heat, moisture and decomposing vegetable matter, are the three essential ingredients in the production of autumnal diseases; and according to the concentrated condition of these agents, and the susceptibility of individuals exposed to their influence, we have simple biliary derangements—or some form of fever—or of intestinal irritation—or finally, cholera itself. But you will ask me, why we should, *this year*, have been devastated by cholera, when ordinarily, our diseases have been of a character so much less violent? The answer to this question involves the whole subject of the local origin of this disease; and my remarks may be conveniently arranged under three heads. 1st. *The flood, of February last.* 2nd. *The temperature of the year, commencing in November* 1831 *and ending in the early part of this present month.* 3rd. *The alterations which have been made in the city during this year, and the local and domestic sources of disease.*

1st. *The flood.*—The snow which had been accumulating during November, December and January, was dissolved by the rains which fell in the latter part of January and the early part of February; and from the 12th to the 21st of the last named month, we had a flood of unexampled elevation and magnitude. It covered the whole bottom; the margin of the high water reaching to the Lower-market and Pearl streets, and widening, as you descend, until the western parts of Third, Fourth and Fifth streets were embraced in its sweep. Ascending the ravine of Deer creek, we found it above a line drawn parallel with the court-house, a distance, by the meanders of the stream, of more than a mile; and ascending Mill creek, which you know skirts the western parts of the city, we found it reaching a point four or five miles beyond the corporation line, and spreading over a valley of from a quarter of a mile to two miles in breadth. The brick ponds in this neighborhood, and the cellars and low places in the city, were necessarily filled, and that saturation of the earth took place, which has been found elsewhere so

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prejudicial to health. It was a long time before many of the cellars became fit for use, notwithstanding the efforts that were generally made to dry and cleanse and purify them. I noticed some that were not emptied of the water until July, and others that had an abundance of wet earth in them so late as September. The miasms from these cellars and low places were particularly offensive after night. Had this flood occurred in May, or June, or July, all eyes would have been directed to it, as the probable source of disease, and I can readily conceive, that by filling the cellars and low places, and saturating the whole substratum of the submerged portions of the city, it may have laid the foundation for our subsequent maladies. In our estimate of the influence of the inundation, it should also be remembered, that a deposite of mud and sand, and vegetable mould, was left exposed to the action of the sun, upon the recession of the waters, that added greatly to the sources of pestilence, that I am endeavouring to develope.

2nd. Under the head of *temperature*, all that relates to the weather shall be embraced.—*The year has been remarkable in almost every respect.* The annunciation of this fact may astonish those who have not derived their opinions from accurate and unerring sources. Our sensations are apt to deceive us in relation to the weather. The statements I make on this subject, are drawn from a register of temperature, &c. kept by my friend, the Rev. C. B. McKee, who has kindly permitted me to use it. From this record, made carefully by a man of science, and with a good instrument exposed to the open air, on the north side of a brick wall, I have arrived at all the facts, which I state in reference to the past year. *The winter was colder and the summer range higher than has ever been known at this place.* Dr. Drake, in his "Picture of Cincinnati," states that the mercury falls below zero twice every winter, and, on an average, rises above 90° fourteen times every summer. But last winter it fell to zero once, and below it six times, viz. 12th of December, —2°; 15th, —7°; 25th January, —2°, at 9 o'clock, P. M. —9°; 26th,

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—11°; 27th,—2°; and during the summer it rose above 90° as many as thirty-six times—once in May—fifteen times in June—twelve in July—and eight in August;—a result rendered more extraordinary, by the additional fact, that whereas 98° was the highest degree of heat indicated in this place, when Dr. Drake's book was published, the mercury rose during the past summer to 99° twice; once on the 16th of June, and again on the 1st of July. It rose to 98° three times—on the 17th of June, and on the 3rd and 7th of July: and four times to 97°—June 11th, July 2nd, 5th and 6th.

The *average* temperature of each month was less in November and December, and greater in each of the other months, than has ever been known here. Of November, I speak from recollection alone: but in December the average was less by 10° than that given by Dr. Drake, as the result of several years observation. The following table will enable you, at a glance, to observe the remarkable difference between this year, and the average of several years.

	1832.	*Dr. Drake's average.*	*Difference.*
January,	35.50	29.88	5.62
February,	42.50	34.42	8.08
March,	54.50	43.97	10.53
April,	64.50	57.58	6.92
May,	79.50	61.32	18.18
June,	86.50	71.16	15.34
July,	87.	74.51	12.49
August,	82.50	73.23	9.27
September,	75.	68.25	6.75
October,	70.	55.08	14.92

From which you observe, that September was warmer than August ordinarily is, and October warmer than September in common years; and that the average heat for the whole ten months was greater by 10.81 degrees than is common at this place.

The *diurnal variations* from cold to heat, and from heat to

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cold, were on an average several degrees less than those ascertained by Dr. Drake. I pass over a monthly comparison, and come to the general result, which is as follows: From cold to heat (Dr. D.) 29.32: for the year 1832, 18° From heat to cold, (according to Dr. D.) 28.37: for 1832, 25°— From which we learn, that the temperature was not merely a high one, but that it continued, on an average, with fewer and less changes, from day to day, than common.

The average of the difference, between the coldest and hottest part of each day, from December to October, shows a higher range for the whole time, compared with that authority which I have assumed as the standard, the "Picture of Cincinnati," so often quoted; but if the months be compared, the difference was greater for December, March, May, July and October, and less for the other six months.

The monthly extremes and ranges differed exceedingly from those given by Dr. D., but I will not trouble you with an array of figures: the result is, that for December, January, February and March, the mercury fell below the point indicated by the Doctor; whereas it did not rise above his statement in either of those months, except March, and then by a single degree. While in all the other months it never fell so low, and always rose above the Doctor's book, except in September and October.

From all which, it results, that the extremes of cold in winter, and heat in summer, were greater than ordinary: that they occurred more frequently, and continued for a longer period: that with the exception of November and December, the average heat of each month was greater: that between the coldest and hottest part of each day, there were more degrees on an average for May, July and October, and less for the other warm months; and that comparing one day with another, the changes were less; that is, the weather was more uniformly of the same temperature. This approximates our warm season to that of India, in which, the nights are cool, and the days oppressive; and, preceded by a cold winter, our population was made more susceptible of the in-

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fluence of heat; just as an inhabitant of Louisiana, who spends a winter in the north, is unacclimated, however long he may have previously borne the heats of the south.

I have no data which enable me to make positive statements in reference to the monthly fall of rain. The flood is conclusive evidence in reference to the month of February. March was dry, three snows and two gentle showers being the only interruptions to serene, clear weather, which this proverbially changeable month underwent. April, on the contrary, had fourteen rainy days: so had May: while in June and July there were only four light showers, in each month, to mitigate the excessive heat which then prevailed. In August there were three days of heavy rain, about the middle of the month, which reduced the mercury from 94.° to 73.°, besides two other days of moderate rain. In September there were seven rainy days; and in October nine, viz. 6th, 8th, 9th and 10th, under which the mercury continued to range from 64.° to 75.°

From this summary of the weather, which I have made as brief as possible, it appears that March was dry; April and May wet; June and July dry; August again was wet; September was seasonable merely; and in October there were four days of hard rain, the two last of which, 9th and 10th, were a continued and incessant pouring.

I have found but one notice of thunder and lightning during the whole warm season, viz. on the 4th day of August.

Fogs began in August. They became more dense and heavy in September, and in October they were rarely absent, except when it rained, until frost appeared, which was on the 24th, 25th, 26th, 28th and 31st.

As indicating a singular departure from ordinary years, it deserves to be recorded, that mosquitoes did not pay their annual visitation until the middle of August, a month or six weeks later than common; house flies were rare during the whole season; and about four weeks before the epidemic commenced, I observed them adhering to the walls and posts in a torpid and dying condition. This was the only premo-

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nition which the animal kingdom presented of the threatened pestilence, if we except the poor and lean and lank condition of the poultry brought to our market—a condition which no process of feeding and care could, to any extent, remove.

3rd. The alterations and improvements which have been made during the present year, are not, perhaps, greatly different from those which have been effected in preceding years; but owing to the high temperature of the summer, there can be no question of their deleterious influence. They have consisted in the alterations of the grading of many of the streets, and particularly of some of those which run to the river, viz. Main, Walnut and Vine; the elevation of Columbia, from Sycamore to Walnut; and the establishment of a *sewer*, from the intersection of Columbia and Main, so as to discharge directly into the river, at the lower end of the wharf, the waters which heretofore have found their way along the channel of Columbia street. These changes must ultimately conduce as much to the health, as they now do, unquestionably, to the beauty and value of that part of the city. But I conceive that for this season, at least, they have been prejudicial, not merely by exposing such an amount of new earth and offal from a thousand sources to the action of the sun; but by their elevation they have converted many of the adjoining squares into the condition of basins, the common receptacles of all the water that falls and runs into them.

The grading and filling up of streets, and the construction of roads, in which much excavation is necessary, have proved highly prejudicial to the health of those who were thus employed. From what can this arise, unless it be, from the effluvia generated by the exposure of new surfaces to the action of the sun? The road hands who have, this season, been employed in constructing a road leading along the side of the hill directly north of the city, elevated many hundred feet above the level of the river, have been notoriously the subjects of the pestilence; and such I understand has been the occupation of those victims of the disease in your neighborhood.

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The subject deserves a more deliberate consideration than my engagements at this time will permit.

The attempts that are making, all along the river bank, to eke out the wharf, and thus scoop an additional foot of land from the bed of the river, cannot fail, in their immediate results, to injure the health of that portion of the city; and the sinuosities left in the margin of the bank, have been, and are yet, the receptacles of every species of decaying and offensive material. The brick yards to the west of the city, occupying the flats of Mill creek, as well as some of the more elevated ground, have been greatly extended during the present year, and they furnished no doubt their full share of the pestilential influence. The ravine of Deer creek has long been a place of deposit for shavings, refuse articles of food, and all other things which were offensive and useless. These remarks are intended for that portion at the eastern termination of Harrison, Sixth, and New streets, the only part of the border of this ravine which is densely settled, and there it is notorious that the ravages of the pestilence were frightful. An exception exists in relation to this ravine, but it is apparent merely. About sixty Germans were engaged in excavating, embanking and building locks, for the purpose of extending the canal to the river; they continued their operations during the whole period of the epidemic, and escaped without the loss of a single man. Similar exemptions have been observed elsewhere, under circumstances, which, at first view, appear to be promotive of disease. But the cause of their exemption is easily understood. *They were working below the surface of the river, in mud and water up to their ancles.* They moved among it with perfect impunity, because, *the excess of moisture prevented that decomposition which generates disease.* Similar anomalies are mentioned by Pringle, in his account of the diseases of the British Army, in the Low Countries; a *very wet year* was always accompanied with universal health; a *dry one* was the harbinger and cause of devastating pestilence. Another circumstance in relation to these Germans should be remembered: *they continued* their

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occupation during the whole pestilence: their minds and bodies were employed, by which they were prevented from brooding over the calamities of human nature, and sinking into a condition of despondency.

I must not omit the condition of Columbia street below Vine. It here constitutes the common estuary of all the washings of the hill as far as Seventh street, as well as the adjoining squares in the bottom, and its condition was filthy, I will not say beyond example, but certainly to a most annoying and dangerous degree: and from Western Row to the river, a distance of three quarters of a mile, this concentrated and accumulated filth was passed off through a narrow and winding ditch, occasionally impeded by the falling in of the banks or other obstacle. Nor must I omit the *domestic sources* of disease, which were conspicuous in most of the chosen haunts of cholera. The settled parts of the border of Deer creek are inhabited by free negroes; and in one single tenement, in which I saw one of the first cases of cholera after it became epidemic, I learned that there were about fifty souls living. The condition of such a menagerie can well be imagined. It was offensive to all my senses in a most loathsome degree. The region round about the intersection of Columbia and Plum and Western Row, which suffered greatly, and which is also inhabited by the same miserable class of people, abounded in an equal destitution of cleanliness and comfort. I need not dwell on the sources of disease in steam boats, flats and keels. They are apparent to all observers, and are to some extent perhaps inseparable from their condition. A general resort to *salting* would add to their cleanliness and sweetness, as well as enhance their durability.

I wish to call your attention for a moment to the prevalent winds of autumn, as accounting to my mind satisfactorily for the existence of a greater amount of disease in the western part of the city, on the hill, than could be traced to any local sources. Within the confines of the district to which I refer, according to the "Picture of Cincinnati," the south

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western wind is the most prevalent during August, September and October, and these winds blow directly over the flats of Mill creek, and the brick ponds to which I have so frequently referred, and bear to the western parts of the city the deleterious principles which are there produced.

Nor must we overlook in this investigation the condition of streets, alleys and back yards. It is not to be disguised that all of them were occasionally very offensive, and of themselves they were sufficient to produce disease, under the influence of a hot sun.

In summing up my observations on this subject, I find that there were three remarkable deviations during this year, from the course of ordinary years:—The *severity of the winter —the flood*—and *the excessive heat of the summer months.* And to the combined influence of these agents I am compelled to ascribe the prevalence of cholera in the epidemic form. Had the temperature of the summer months been less than it was, it is possible the effects of the flood would have ceased with the subsidence of the waters. It is certain that the other sources of disease I have pointed out would have produced, as in other years, merely an augmentation of common diseases. Had, however, all these sources of disease been removed, and the city rendered clean and sweet in all its length and breadth, the inference to my mind is irresistible that the epidemic would have passed by us as lightly as it did in Philadelphia or Boston.

You observe I do not present in the foreground *intemperance* as one of the causes of cholera, because nothing could be more untrue in reference to this city, than the insinuation, that none but the intemperate fell victims to its ravages; nor even if they constituted, as I am disposed to think they did, a majority of the sufferers, would this fact throw any light on the inquiry, why intemperance should this year produce cholera, when heretofore, it has caused maladies of another decription altogether? Nor can I for one moment entertain the opinion that the disease is to be traced to eating fruit, melons, &c. My family indulged freely in all these.

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things, and even in green corn, until the pestilence commenced, and yet none of us suffered the least inconvenience or danger from our imprudence, as some would call it. I am utterly incredulous on this subject, because I was rarely able to trace an attack to any error in diet, either immediate or remote, and many of the most careful fell before the scourge, while some of the most reckless escaped. A poor woman told me, that her children had eaten freely of wild grapes during the whole epidemic, and yet they all escaped. I do not wish to be understood as advancing the opinion, that the predisposed, or the actually sick, should discard all regard to regimen, but I have no doubt that more disease resulted from abstinence and the use of innutricious food, than from indulgence.

'The localities of all the deaths from cholera are not so well ascertained, as to enable me to designate with precision the ratio which belonged to the different portions of the city. Enough however is known to establish the fact, that it prevailed most in those quarters in which, under ordinary circumstances, bilious disease, in some one of its Protean shapes, has heretofore been observed. Indeed, it is confirmatory of this view of the cause of epidemic cholera, which I do not attempt to indicate further than to identify it with the cause of autumnal diseases, that, generally speaking, the fevers which run their race simultaneously with it, were found in the range of the table land, which constitutes the upper portion of the city.

But you will say, if there be physical causes of cholera, why did they not act more or less during the summer in the production of this same disease? Why should there have been such a sudden augmentation of it in the early part of October? And why should it have declined almost as rapidly as it sprang up? The answer to the first inquiry might be greatly amplified: but contenting myself with a reference to the state of the weather, and to the acknowledged fact, that physical causes do not shew their effects until some considerable time after they have acted, I go on to remark, that

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intestinal irritations have been prevalent during the whole season; that I heard of two cases in April, which I believe to have been genuine cholera; that I saw an unequivocal case in May; a very severe one in June; a fatal one in July, the first I had seen; and my observation since enables me to say, that I have seen no case presenting all the symptoms more unequivocally developed. Besides this, I saw several other exceedingly bad cases, in this month, which recovered. In August I saw other cases, none of which proved fatal; but the disease in this month was not as often presented to me as in the preceding. In September, I neither saw nor heard of a case; and if I were to venture an opinion on this subject, I would ascribe it to the fact, that there was less difference between the temperature of the coldest and warmest part of the day, in this month and in August, than in July and October, compared with the average heat of those months as recorded in the "Picture of Cincinnati."

The sudden augmentation, which took place in the early part of October, is to be ascribed to the rains on the 6th, 8th, 9th, and 10th; to the cold nights and hot days which succeeded; and in part to the panic which seized upon our population, and had a decided influence in augmenting the number of victims. From this time onward, the thermometer did not more surely indicate the rise and fall of the mercury, than it did the number of cases, and the amount of deaths. Severe frosts on the 24th, 25th, 26th, 28th, and 31st, produced so decided a mitigation of the epidemic, that on the last named day, only three deaths, in private practice, were reported by the Board of health. The disease still lingered among us, however, and even at this time, new cases of exceeding violence are occasionally presented.

In conclusion, on this branch of the subject I may remark, that I observed no fact, which led me to entertain a suspicion that the disease was contagious, in any of its stages, or under any circumstances. I was with the sick, the dying and the dead, and yet I saw it communicated in no one instance.

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Immediately after the 10th of October, cases occurred in every part of the city, but of every grade;—some had numbness of the extremities—others vertiginous feelings—others had merely a stiffness and immobility of the joints of the hands and feet, with pain in the bones, or on motion;—those who were more under the influence of the epidemic, had diarrhœa, or cramps, in some instances confined to the fingers and toes, and in others extending to the trunk, and implicating the hollow viscera of the abdomen:—some had all of these symptoms, with vomiting and an active pulse, and warm skin;—others had none of them but diarrhœa and vomiting, with cold extremities, cold surface, feeble pulse and disturbed respiration;—some had alvine discharges, resembling the water of the streets, or roads, after a shower;—while in others, they were observed of every colour between this and the genuine rice-water, or sero-albuminous discharge. The danger was in proportion to the approximation to this peculiar colour, and to the *absence of spasms*, when this kind of discharge existed; for these, though horrible to the bystander and agonizing to the sufferer, indicated a power of resistence to the malady, which left a hope that remedies might avail: some however, *with the spasms*, had the feeble pulse, the cold surface, the corrugated and unelastic integuments. The disease in full developement was generally preceded by the premonitory diarrhœa. This I think was the most frequent mode of attack, but it was not always the precursor. In some very violent cases there was no diarrhœa, during the whole progress of the attack. In one very remarkable case there was *no purging, or vomiting, or spasms.* He complained of a deadly intense pain in the epigastric region. His flesh was so cold, that when you grasped his arm, you had that sort of chilling sensation which is produced by touching a dead person: the surface was bathed in a profuse clammy sweat, and his pulse was very feeble, and at times almost imperceptible. He remained in this state forty-eight hours, during which, there was no discharge of urine. After this protracted cold stage, reaction commenced; the pulse

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rose; the sweats became warm; the urinary secretion was re-established, and convalescence advanced slowly, though steadily. I saw three other cases in which the epidemic wore the livery of bilious cholic. There was obstinate constipation; but there were violent spasms of the intestinal tube, in one instance confined to the small intestines, and in the others involving the colon: but these cases could not be mistaken; they were but other modes in which the epidemic influence displayed its power; the same want of biliary and urinary secretion existed as in the ordinary mode of attack; and the remedies did not essentially differ from those employed in combatting the common forms of disease.

At the same time, that these forms of cholera were desolating the city, I saw bilious fevers of every grade, from mild remitting to malignant. In others, on whom the influence was less operative, there were slight biliary derangements, indicated by nausea, or simple want of appetite, and by a torpid or sluggish condition of the bowels. Others had dysenteric symptoms with or without fever: women menstruated more freely, and at irregular times: but what was very remarkable, and different, I think, from what has been observed elsewhere, I neither witnessed nor heard of any abortions during the whole period of the epidemic. Some cases that commenced as febrile attacks ran speedily into cholera; and, in my own observation, most generally into the stage of collapse; and others that commenced with all the symptoms of cholera, fell back into the milder forms of disease. There seemed to be a *scale* of danger, running as it were from simple biliary derangement to cholera in its worst form; indicated by the sudden supervention of diarrhœa, vomiting, prostration of strength, and pulselessness. This scale might be constituted in the following order; biliary derangement without fever—with fever of a mild type—of a more malignant grade —vertiginous state of the senses of seeing and hearing—numbness of the extremities—with costive bowels—with diarrhœa—with vomiting—with cramps—with strong pulse and warm skin:—with the preceding symptoms, but the pulse

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weak and vascillating, the heart having no power to send the blood to the extremities, or to the surface, which were cold, clammy, corrugated, and livid or blue. Another scale might be formed, from observing the alvine discharges: where these contained the slightest admixture of bilious matter the danger was remote; and this danger was always in proportion to the thinness, on the one hand, and the approximation to the rice-water colour, on the other. All these discharges were bad—but worse in proportion as the colour became white.

Such and many more were the shades of difference which this singular epidemic assumed; but like the garments that a man puts on, they could not conceal it from any but the most superficial observers. Under some one or other of these forms of disease, almost the whole population suffered; and the suddenness of some of the early deaths created a panic, which hastened the destiny of the sick, and paralized the energies of the well. Many fled—some by the river, and others by the land; while of those that remained, the boldest were appalled "for a time." *No man is brave on all subjects;* and I have seen the stoutest heart, one that would have braved death at the cannon's mouth, quail beneath the loathsome aspect and horrid lineaments of this messenger of death.

I have already remarked, that the disease was generally preceded by the premonitory diarrhœa. It would be more correct to indicate this as one of the forms of cholera; but because of its so frequently running into the aggravated condition, it has been considered as premonitory merely: existing for six months in some instances, in others, it has appeared only a few hours before the disease was fully developed. When rapid in its progress, or when it is about terminating in the confirmed disease, it is very peculiar in its character; there is no griping or tenesmus, no pain in the bowels, either when the evacuations take place, or at any other time. When the patient rises to the vessel, there is one sudden discharge of fluids, and all desire for evacuation is over for the time. The next most frequent premonition was afforded by

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the disordered condition of the senses of seeing and hearing; but many had these who never had any other symptoms of the disease; and I am disposed to think, that when they appeared alone, they constituted the mildest form of attack. The next in frequency, but by far the most certain premonitory symptom, was the *numbness of the extremities*—that feeling which is produced by impeding the passage of nervous influence. I was in the habit of calling this the *remote* premonitory symptom, because when it appeared, it was generally several days before diarrhœa, or any other symptom. The bowels might be regular, the appetite and sleep good, and the pulse unaltered, and yet this symptom invariably led to the confirmed disease, if unattended to. In some attacks all of these symptoms were present or appeared in quick succession: in a few others, none of them, so far as I could learn, and these generally assumed the form of bilious colic. But to speak correctly, any derangement of health, at this time, should be ranked among the premonitory symptoms; whether it be diarrhœa—or constipation—voracious or diminished appetite—vertiginous senses—or morbid sensations in the extremities—dysentery, or some form of fever.

The rapidity, with which these symptoms, or initiatory stages, led to the disease in full formation, was exceedingly different. I have seen fever terminate in cholera in thirty-six or forty-eight hours. The diarrhœa was sometimes, in a few hours, followed by prostration of strength, cold extremities, pulselessness, and death. I never saw vomiting in a single instance without the antecedent diarrhœa; nor do I remember to have seen even nausea, except under the same circumstances. I need not dwell minutely upon the symptoms of this strange malady. No person of ordinary sagacity, unless blinded by prejudice, can fail to recognize the first case that may be presented to him. To my mind, however, the diarrhœa, the vomiting, or the cramps, are not more distinctive than the cold, and corrugated, and doughy condition of the integuments; the feeble, vacillating and evanescent pulse, and the peculiarly unpleasant alteration of the

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voice. This is so different from health, or the change which it undergoes in any other disease, that it cannot be mistaken, and once heard, it can never be forgotten. The countenance may not always become angular and attenuated; the eyes may not in every instance be drawn into the socket, as if by the pulling of the optic nerve; but this change of voice has never been absent when collapse, or a tendency to it, comes on. In many cases, the conjunctiva was highly injected with blood; in some there were blotches, like ecchymoses, generally florid, but occasionally of a dark purple hue, in the lower portion of that membrane. In one case, about terminating fatally, I observed the cornea with a line drawn across its lower segment as if seared with a hot wire. In another case, of consecutive form, however, the whole lower portion of the cornea was in a sloughing condition. The strength is sometimes astonishingly preserved, and the intellects remain clear to the last. Dr. Ridgely told me, that on visiting a patient, he found him sitting up in bed, with his spectacles on, and a newspaper in his hand. *He was reading the Report of Cholera! He had no pulse, and his extremities were of an icy coldness.*

Of the pathology of this singular malady, I know but little more than the morbid secretions indicate. The liver is torpid; the kidneys are equally so; the capillaries of the stomach and bowels are highly excited, and pour out abundantly the peculiar fluid which is discharged by vomiting and purging; the capillaries of the skin are inactive, and a deficient secretion of heat is one of the results. In relation to this state of the surface, we observe one of those strange anomalies which puzzle and confound all our philosophy—the patient complains of heat, when to another his limbs are painfully cold. Of the state of the nerves, I know nothing; nor have the dissections here, so far as I know, established or removed one doubtful opinion on the subject of its pathology, or its treatment.

It would be an interesting subject of inquiry, to ascertain what organ, or set of organs, first took on disease. The mor-

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bid sensations, to which I have frequently referred, would lead to the inference that the nervous tissue first suffered; but the brain, the centre of that system, is comparatively free from derangement of any sort. Of the abdominal viscera, the liver unquestionably first becomes diseased;—in a confirmed case the torpor is complete. The torpor of the kidnies seems connected with that of the liver. If only inebriates were liable to the disease, we would ascribe the torpor of these organs to excessive stimulation. But I am disposed to think that there is, even in health, a connexion between the functions of these organs, which has never been investigated with care. In disease we observe it in jaundice —and perhaps in diabetes—and it is certainly very apparent in the early, as well as the latter stages of ordinary fevers. However this may be in the present instance, it differs altogether from the PARURIA INOPS of Dr. Good.

The disease, in the state of its premonitory symptoms was generally easily cured, and by simple remedies. The spasms, when accompanied by a pulse strong enough to send the blood to the extremities, although they indicate a more severe form of the malady, are still curable. It is in collapse alone, that the resources of the art fail us, and the patient may be surrendered to his fate, without a departure from professional duty.

In the treatment of diarrhœa, you should have the feet bathed in hot water, rendered stimulating by the addition of salt or mustard: you should then order the patient to bed; have hot bricks applied to the extremities, to the small of the back, and to the pit of the stomach. He should be covered warmly, and when free from nausea he should drink abundantly of warm tea of any of the sudorific plants; some prefer eupatorium, but I have found equal advantages from balm or sage, or table tea. In addition to these means, if the deficiency of temperature be great, sinapisms are ordered to the extremities, to the small of the back, and if nausea exist, to the epigastrium, and indeed to the whole abdomen; to these are sometimes added pulverised capsicum; or they are

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made more stimulating by being mixed up with spts. of turpentine, instead of hot water or vinegar. By all of these means, or such as you deem necessary in any particular case, you restore the heat of the surface, and produce a copious perspiration, which you keep up until the disease is brought under the control of medicine; which consists for the most part of some preparation of *mercury* and of *opium*—ten grains of calomel, and one of opium, repeated every hour until the discharges from the bowels were arrested; and the calomel alone, in ten grain doses, until free discharges of a thick consistence, and of a green or black colour, were brought off, rarely failed to subdue this form of the disease. Sometimes the liver would speedily take on this mode of action; but at others, its secretions would pass through many changes before they reached the green consistent stool, which was, ordinarily, the prelude to a healthy condition of this organ. Their transitions were very various; but the *lead* coloured stool generally semi-fluid, but sometimes firmer, and what I called the *charcoal stool*, rather thin, and having granules adhering to the surface of the vessel, resembling pulverized charcoal, were the most common. Any change from *white* to *green*, and from a condition of perfect *fluidity* to *consistence*, was favorable, and only required perseverance in the proper remedy to complete the cure. Sometimes, a single pill of calomel and opium was sufficient; but most frequently from sixty to one hundred grains of the former, and from two to six of the latter, were required. This, with such modifications as each physician preferred, has been the general practice here; and I have given into it; but a greater experience has convinced me, that a much less quantity of opium should be used; indeed, I am not sure that *any* is absolutely necessary, unless the spasms or cramps are present. Certain I am, that the congestion of the brain, so apt to occur after reaction takes place, is greatly aggravated by the opium.

But the diarrhœa is not an independent symptom. It is soon associated with others of a frightful character, and you have at the same time the cramps to contend with, and the

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feeble circulation to excite. You then persevere in the calomel practice, while you stimulate the surface in the manner that I have mentioned, and resort to frictions, either with the warm hand of a strong and resolute assistant, or with folded flannel and stimulating embrocations; the best of which are spirits of turpentine, or strong mercurial ointment, pulverized capsicum and camphor; or capsicum, camphor, turpentine and sweet oil. These must be applied assiduously to all the cramped parts, taking care not to expose the patient by uncovering him or letting in cold air. You cannot dispense with frictions of some kind when the spasms exist, and yet I am compelled to say, they are of no avail unless you can stimulate the liver, to active and healthy secretion. In this aggravated condition, this requires from ten to two hundred grains of calomel; and I always look upon it as a favorable sign, when all discharges ceased, for a few hours, under its administration; for if the remedy be persisted in, under these circumstances, the liver rarely failed to pour out an abundant green, gelatinous substance, such as we have been in the habit of seeing in the fevers of the West, for the last seventeen or eighteen years; this, though a morbid secretion, uniformly led to a healthy action of this organ, and whenever this took place, the patient was considered safe. There is nothing more inscrutible than the connexion between the torpid condition of the liver, and the feeble circulation; the cramps and the sero-albuminous discharges from the bowels, and the suppression of urinary secretion. And yet nothing is more true, than that so soon as this torpor is overcome, the cramps disappear—the circulation is invigorated—the skin becomes warm—the thin discharges cease—and the urine flows freely.

If nausea or vomiting existed in the early stages, I gave an emetic of a saturated solution of common salt. Some used the mustard emetic, but I preferred the salt and water, unless the patient was greatly prostrated. The eupator um was also given by many as an emetic; but either of the others are better in my opinion. I did not give the ipecacuanha at

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all. In one case I administered the antimonial wine, but I was not pleased with it, although the patient recovered. The advantages of an emetic, when nausea or vomiting existed, were very striking, (particularly of the salt emetic, concerning which my experience was considerable;) it threw off the contents of the stomach, and restored it to a quiet condition, in which it would for an hour or two, bear any medicine which the farther treatment of the disease rendered expedient. This was the golden period for the administration of calomel, or if preferred, calomel and opium. Sometimes I have given 3ss. or even 3j. at a dose, and have been greatly pleased at the result. Indeed, I incline more and more to the opinion, that all you deem necessary in the case should be given at *a single dose.* Some added to the calomel and opium a grain or two of capsicum, and a few grains of camphor; but I do not admire either addition, unless under circumstances, that would, in other diseases call for these remedies. I expected nothing more from the emetic, than what I have stated. I did not look to it as a means of rousing arterial action, and preparing the system for the use of the lancet; I confess I observed no such effects. On the subject of bleeding generally, my rule of practice was extremely simple; I was governed by the same indications which apply to this remedy, in other diseases. When the pulse is strong, no matter what its velocity, infinite benefit is derived from the lancet: when indistinct, feeble, and vacillating, it hurries on the fatal issue. I was always delighted, when I found a pulse that would justify the use of this instrument. But I bled to *reduce*, not to *increase* arterial action. For the removal of the *numbness*, free purgation with calomel was indispensable; without this, frictions did no good. In this condition I bled more freely than in any other, except when cramps were accompanied with *strong pulse*—a case of great apparent danger, but one which yields readily and beautifully to the lancet and calomel.

I have seen several attacks in the form of *bilious colic.*—But although the symptoms are different, the disease and the

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remedies are the same. The liver is torpid—the kidneys are inactive—and the spasms implicate some portion of the alimentary canal. *You bleed when you can.* In one case, which I saw in consultation, I concurred with the attending physician in advising the lancet. In one other, which occurred in my own practice, near one hundred ounces of blood were drawn; in another not a drop; and yet all of the three recovered. In all such cases I resorted to calomel in large doses, not forgetting the opium, which seemed demanded by the intolerable agony of the patients.

Vomiting, though a prominent, was generally the most easily subdued of all the symptoms of cholera. An emetic—a large dose of calomel, with or without opium—a sinapism to the epigastric region, or to the spine—quietude—withholding all manner of drinks, rarely failed. Some used ether, laudanum, &c., but I scarcely ever gave them. When these means failed, and they sometimes did, I have seen ten grains of quinine, two or three grains of camphor, and one third, one fourth, or one fifth of sulph. of morphia every two hours, succeed to admiration. At other times, calomel in 3ss. or or 3j. doses quieted this organ completely. To this some add African pepper and camphor, but I like them not. When, however, this organ remains irritable, with a constipated condition of the bowels, a condition which sometimes springs up, when the diarrhœa has been arrested, I have succeeded in quieting it, and operating finely upon the bowels, by giving, in small portions at a time, a saturated solution of sulph. magnesiæ. For the removal of the irritable stomach with constipation of the bowels, I know nothing half so good after the free administration of calomel.

I was often asked what modification of treatment is necessary in pregnant or menstruating females? Would you give calomel, and blister, and bleed, and resort to frictions, &c. as freely as in others? Certainly. I knew no modifications which those conditions demanded. Nor did I see any danger, which resulted from the use of these Herculean remedies. As I have said, I saw no case in which any tendency

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to abortion took place, although I saw one pregnant woman who died with the disease. And as to those who were menstruating, whether this discharge were really menstrual, or a mere hæmorrhage from the uterus, it demanded no remedy but calomel, and the lancet; for, as I now remember, all who were in this condition had an active well developed pulse.

When the case was one of ordinary fever, as it would seem, the lancet was eminently demanded, and if used freely, with proper purgation, it continued a case of fever until convalescence; but if the lancet were neglected, it sometimes ran rapidly into the collapse of cholera. I think I lost a little child from neglecting the lancet and relying altogether on purgatives.

In a disease so rapid in its progress, you cannot wait to see the effect of one remedy, before you resort to another: on the contrary, you are compelled to carry on, at the same time, all of the compatible modes of cure. Thus you administer calomel, and, simultaneously, excite the extremities, by sinapisms, the spine by blisters, (a most excellect expedient, and one that I recommend to your special consideration,) the whole surface by frictions and stimulating embrocations, by hot applications, warm covering, and warm sudorifics, when the stomach will bear them: for this latter object, I have sometimes used warm brandy toddy, well spiced or peppered, with decided advantage.

You cannot, in every case, dispense with the purgatives, which are ordinarily given, as adjuvants to calomel. When this has excited the liver, but, at the same time, acts slowly and inefficiently on the bowels, you give the castor oil—Rochelle salts—magnesia and charcoal, or rhubarb and magnesia—or the vegetable cathartics—avoiding, however, those that are apt to produce the watery passages. I saw a fatal case of cholera, which was certainly excited by a dose of cream of tartar and jalap, administered by the family. Some prescribed the Croton oil, and admired it much. I gave it on several occasions. In one obstinate case of *cholerique colic*, I gave twelve or fifteen drops in all, with good results;

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but generally its action was so harsh, that I was displeased with it; and now I rarely prescribe more than the fourth or fifth of a drop, in combination with calomel, or rhubarb, aloes and scammony. I recommend this last combination as furnishing the best purgative pill I have ever tried.

Thus you see, that the same principles govern us in the treatment of cholera, which direct us in other maladies. Indeed, I have long since discarded the idea, that there is any thing peculiar in this disease, which throws it out of the pale of regular practice. The *cramps*, I saw in diarrhœa, twenty years ago. The *collapse*, the most horrible feature in it, does not differ essentially from the same state as the *termination* of the malignant fevers of Green river, and when I first saw it here, I told my friends, that I had seen it before. The combination of these, and other ominous symptoms, in a single case, and the *suddenness* with which *collapse* supervened, constituted the only difference. But when it comes on, all the stimulants of the alembic cannot avert, for one moment, the fatal issue. Indeed, I have remarked here, as elsewhere, that the spark of life was suddenly extinguished by the free administration of stimulants internally. You can do nothing to *cure* this state, though you may do much to *avert* it. I will not say you can always avert it, even when called at the earliest ascertained period of attack; some cases are so insidious, being apparently mild, when in reality they are of the most malignant character, that the patient is hurried into a hopeless condition before you are aware of it; and I have certainly seen some cases, in which the first indication of danger was, at the same time, an indication of approaching death. I know that medical Reporters conceal these things, and boast of their uniform success; but deeming truth of more value than the ephemeral honor of curing all *on paper*, I am compelled to acknowledge, that I have lost several, to whom I was called before collapse took place. And yet, some will tell you, they have cured patients who were in a collapsed condition! They attach a different meaning to the term from that which I affix to it.

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Astringent injections to restrain the diarrhœa, were, by some of my friends, thought worthy of confidence, but they should be considered merely as temporary expedients, to gain time for the calomel to exert its specific influence on the liver. *Calomel is the best astringent.* Diuretics have been depended on by some of our physicians, as I have been informed; the secretions of the kidneys following readily the fate of the more important viscera, are not to be restored until they are corrected. I have heard of tobacco injections having been used in two cases, but they eventuated badly. The cold affusion was employed in a collapsed case, but of course, without any benefit. I have understood, that the veins were injected in one case, but without averting the fatal issue. Stephens's Powders have been tried with no success, though not, perhaps, with proper care or discrimination. Phosphorus has been used in the collapsed condition, but it is entitled to no confidence in that or any other stage of cholera. I was called to several patients, who had placed themselves under the camphor treatment, according to the newspaper account it. It is worthy of no confidence as the sole remedy; though unquestionably, as one of the agents to which we should occasionally resort, it is not to be overlooked. But the more I know on the subject, the more I am convinced, that we should discard all *nostrums*, and prescribe for the condition of the system, just as in any other disease.

It has rarely fallen to my lot, to see any body recover from a violent attack speedily, as they are said to do in India. More or less of *consecutive disease* almost always attends the recovery from the real cholera symptoms. In one case, after all the prominent symptoms of cholera had been removed, I had left on my hands a case of *mania a potu*, which I cured by giving from twenty to thirty grains of opium in as many hours. In many cases, the consecutive form is of a mild grade, requiring merely attention to the regular daily evacuation of the bowels. But I need not amplify on this topic. You are to be governed by the condition of your patient. You are to forget that he had cholera, and interro-

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gate the symptoms, and not the attendants. I have bled some in this stage, with as decided advantage as I ever used the lancet in my life. All have required free and active purgation, and have been improved by it; and counter irritation can never be dispensed with, when the brain is suffering, unless the symptoms yield readily to the lancet or purgatives. The treatment does not differ essentially from that which is successful in what is *called* typhus fever; this stage of disease being induced, as typhus fever ordinarily is, by more stimulation than the various organs, and more especially the brain, can bear with impunity.

Some look on ptyalism as not only a cure for the disease, but as a preventive of an attack. I have a few words to say on both of these opinions. As a means of cure, it cannot be relied on, for you cannot effect a salivation while the thin discharges continue; nor until after the green discharges have commenced flowing; that is to say, you cannot salivate until your patient is cured!—and then it is manifestly unnecessary. It is the action on the liver that is curative; and all beyond that, is, to say the least, unnecessary. But inasmuch as it is debilitating, it is detrimental. The induction of this state is to be avoided, therefore, as a positive evil, while we are to endeavour to bring about the changes in the liver, as the only means of cure. As a prophylactic it deserves but little consideration, as I saw one case of death and heard of others, in which the salivary glands were in a high state of excitement.

Relapses have been frequent, and convalescence slow and unsteady; more especially in the feeble and delicate, and others who had previously laboured under affections of the liver. But I know no facts in relation to either of these subjects, which would be particularly interesting to you. General treatment, with that salutary attention to regimen, which is found available after other diseases, is the only sure mode of preventing relapses, and advancing convalescence.

On the subject of preventive means, I think there is much parade of usefulness with but little real utility. Warm com-

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fortable clothing, consisting of flannel next the surface, and of woollens generally; warm sleeping, whether on beds of down, or on some harder material; an abundance of good wholesome food, consisting of our favorite and native bacon, with that article which you of Kentucky know how to prepare better than almost any other people, renowned hominy, and fresh pure bread, whether of the Indian or the English corn; with those beverages which nature has prepared, milk and water, or those which are obtained by infusing the Arabian berry, or the Chinese leaf; together with such vegetables and fruits as are ripe and nutricious; all of course with that moderation, which becomes a people, who have been so long restrained; with attention to personal, domestic and city cleanliness; and constant, incessant and engrossing occupation:—these are the means, and, in my opinion, the only ones which deserve to be enforced, and the observance of which would be worth the trouble and expense.

In your state, however, a more general surveillance might be effected, and with manifest advantage. I would advise all masters and overseers to make it a morning and an evening duty to institute a minute inquiry into the condition of the alvine discharges of all under their care, and as soon as the slightest deviation from health is observed, active remediate treatment should be resorted to. Under such circumstances, a gentle emetic, or a single dose of calomel, would do more good than, twelve hours afterwards, the doctor with all his drugs and skill might be able to effect.

And if to these be added, a "a heart without fear and without reproach," every thing will have been done, which human agency can effect, to avert the threatened calamity.

Hoping that the disease may pass lightly over you, I remain, dear sir,

Your friend and ob't serv't.

JOHN F. HENRY.

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ART. VI.—*Remarks on Spasmodic Cholera, as it appeared in Louisville in October* 1832. By THEODORE S. BELL, M. D. of Louisville, Kentucky.

IF we were called upon to select any particular subject, from which to argue the propensity of man to run into the wildest errors—to seize fragile straws with a giant's grasp—to overlook truth and sound deduction, in pursuit of some phantom hypothesis, conjured up by devotion to an idle theory, we know of none, in the list of mental achievements, more crowned with proof than that which we have chosen as the subject of the following memoir.

While its death-notes rose wildly above the tempest of human suffering, on the banks of the Ganges, covered with pilgrim devotees; through the jungles of Asia, to the "salubrious plains" of Orenburg, the world stood aghast, and the corps of medical philosophers did but little to allay its fears, or to speak comfort in the day of trouble. From the high and verdant bank of theory, the wildest and most discordant notes arose; observation was neglected, truth exiled to darkness, and facts strung together wildly and ridiculously. Indeed, a strange anomaly presented itself in logic, for if there appeared the slightest deviation from established law, immediately, instead of holding the possessed facts at bay, until others were acquired, they were permitted to break loose, and canter away, until caught again, and attached to the car of the first hypothesis capable of running them—their adaptation to it being argued from the very ambiguity that rendered their rejection by another reasonable. Thus, its appearance in Russia, "when its rivers were frozen, and the earth's surface was covered with snow," was deemed an *argumentum crucis* against its miasmatic origin, and then the

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strange deduction followed, that it must be, necessarily, contagious. Wonderful and immutable logic! What power can resist thy force? But the hue and cry of contagion once raised swept over Asia and Europe with a celerity greater than the disease itself. The game once opened on, the whole bevy started off in full pursuit, and so joyous were the notes of success, that our very ears were stunned with their pæans of victory. The fact is, however, that there has been nothing contagious about it, except the propensity to error, and many joined the pursuit of the phantom for the same reason that the sheep of Panargus jumped into the sea—because their leader fell in.

A full history of the various contortions which Pathology and Therapeutics have been forced to make, in the hands of ingenious medical philosophers, must be left to some one of similar powers to those possessed by the author of "Terrible Tractorations." We select but two for the present—one in pathology, by Mr. Orton—the other in therapeutics, by Dr. Clanny.

Mr. Orton is the representative of a numerous body of chemical pathologists, and the following is his view of the remote, predisposing and proximate causes of cholera. He says, "the *deficiency* of electric fluid in the atmosphere, produces a correspondent *deficiency of that principle in the arterial blood;* whence the nervous system is rendered incapable of *separating* and *supplying* a sufficient quantity of the '*nerveo-electric fluid*' to the wants of the animal economy; and *that state* which has been termed '*diminution of nervous energy*' with its infinite series of effects is produced." Enviable celerity in philosophising. Only six baseless assumptions, in seven lines, and yet Mr. Orton is a conspicuous writer on cholera! Give him but an electrical machine, and the disease would soon bid the world "good night."

The therapeutics of Dr. Clanny are much wilder still; but fortunately for the profession, he stands insulated in the shade of his own insignificance. He says, "The fatality of the disease is owing to the serous portion of the blood being drain-

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ed from the system," and advises as a safe remedial measure, "the introduction of a pyramidal plug into the verge of the rectum, to be confined by a T bandage." We defy the production of two *darker* lights, on any mystic point in medicine, even when humoralism was "lord of the ascendant." Well may M'Culloch bewail the want of a medical Newton, if England boasts many such philosophers as Orton and Clanny.

But a calm has succeeded this tempestuous time of error; the inductive philosophy has risen from its slumbers. Never has its dictates been more neglected; never have they been more needed. Its uncompromising scrutiny has caused the air-built domes of fancy to dwindle into nothingness, dissipated the dreams conjured up during the 'reign of terror,' and scattered to the winds of heaven all the work of man, that had not fact for its prop, and from which reason was estranged. An attention to it, has showed conclusively, that epidemic cholera is not an outlaw, though so pronounced by those who have made a business of catching stray facts, wandering on the commons of medical science; but on the contrary has been completely under the control of all those laws which the experience and observation of man have laid down as the attributes of miasmatic diseases of an epidemic character. On the threshold of this annunication, however, we are met by the query—If of miasmatic origin, why is it a disease of such modern date? This is supposed to arrest the decision at once, and to shut the door to further inquiry on that proposition; but it does not meet the question at all; for if of so much value in a logical point of view, it should be convertible, and then we could prove the non-contagious nature of small pox, by asking, from whom its first victim caught it? And yellow fever too, could, by the same system of reasoning, be set apart from miasmatic diseases, for there has been a time when it was unknown.

But it is not our wish to answer the objection by "shifting position," according to the rules of logic; we meet it armed and panoplied with facts, and proceed to show that the idea of its being a *nova pestis* is altogether an error.

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Bontius, a Dutch physician, described it in 1629, and his description would suit the majority of cases which have appeared here in the present year, in all the essential features.

The Bombay Board affirm, that the disease described by Sydenham as the prevailing epidemic of England in 1669, was the *same* that prevailed in Asia in 1832, under the name of Malignant Cholera.

Dr. Paisly, in a letter dated Madras, 12th February, 1774, gives an account of its having prevailed sometime before, supposed to be 1769 or '70, both epidemically and otherwise.

Sonnerat gives an account of it, from 1774 to '81. He says it prevailed sometimes in the winter and at others in the summer.

Thus we might go on, down to our own time, but it would occupy more room than we have allotted to us, and we close this branch of the investigation, by copying from the report of the Madras Board, to which we acknowledge ourselves indebted for the foregoing facts, the description of the disease given by Curtis in 1782. All, who have seen the disease, will recognize the truth of his drawing.

"The disease began with watery purging, attended with some tenesmus, but with little or no griping. This always came on towards night, or early towards morning, and continued some hours, before any spasms were felt; and light affections of this kind being very common in the country, the patients seldom mentioned them till they began to be more severe, and extended to the legs and thighs. This purging soon brought on great weakness, coldness of the extremities, and a remarkable paleness, sinking and lividity of the whole countenance. Some at this period had some nausea, and retching to vomit, but brought up *nothing bilious.* In a short time the spasms began to affect the muscles of the thighs, abdomen and thorax, and lastly they passed to those of the arms, hands and fingers; but I never saw, then or afterwards, those of the neck, face or back, at all affected. The rapidity with which these spasms succeeded the first attack, and their severity, especially as affecting the muscles of the thorax

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and abdomen, denoted in general the degree of danger in the case. This spasm was a fixed cramp in the belly of the muscles, which are gathered up into a hard knot, with excruciating pain. The patients complain much of the pain in the cramps; think they obtain some relief by friction of the parts, and cry to their companions to rub them hard. As the disease proceeded, the countenance became more and more pale, wan, and dejected; the eyes became sunk, hollow and surrounded with a livid circle. The pulse became more feeble, and sometimes sunk so much as not to be felt at the wrist, in two or three hours after the spasms came on. But so long as it could be felt, it was but little altered in frequency. The tongue was generally white, and more or less furred towards the root: the patients had all great thirst, or rather a strong desire for cold drinks; but there was no headache, or affection of the sensorium commune throughout.

"The coldness of the extremities, which was perceptible from the very first, continued to increase, and spread over the whole body, but with no moisture in the skin till the severity of the pain and spasms forced out a clammy sweat, which soon became profuse. The hands now began to put on a striking and peculiar appearance. The nails of the fingers became livid, and bent inwards; the skin of the palms became white, bleached, and wrinkled up into folds as if long soaked in cold water. In some of the present cases, and in many others after this, we had recoveries from the severest degrees of spasmodic affection; even where the pulse had been for hours completely lost at the wrist, and the body perfectly cold; but never of any who had profuse cold clammy sweats, and where the hands had put on this appearance." (See case 2d at the end of this essay.)

"All this while the purging continued frequent, and exhibited nothing but a thin watery matter or mucus. In many, the stomach became at last so irritable, that nothing could be got to rest upon it, but every thing that was drank, was spouted out immediately, without straining or retching. The breathing began to become laborious and panting—in this

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progression, the patient remained from three to five or six hours from the accession of the spasms; seldom longer. Sometime before death took place, the spasms gradually abating, left the sufferers entirely, and so much possession of their faculties did they retain, that they would continue to talk sensibly to their messmates, to the last moment of their life, even when the whole body had become perfectly cold, and all pulsation of the heart had ceased for a long time to be distinguishable."

These facts are deemed conclusive as to its age—it remains for us to say something for the establishment of its miasmatic origin; and this we shall do as briefly as possible. The phalanx of facts, brought forward by Prof. Cooke, in the 4th volume of this Journal, stands unshaken, and may be consulted with advantage by those who are investigating this subject.

In surveying its progress through the world, we are struck with surprize, that when its alliance with our common autumnal diseases, in every feature of an essential nature, is so marked and so striking, the fact of a common origin should not have been noticed sooner. There is not one single symptom of cholera asphyxia peculiar to it, but every one has been observed, in a greater or less degree, repeatedly in the autumnal fevers of this country. Where is the physician, who has not had his remedial attempts thwarted for a time, by the excessive irritation of the stomach, in common bilious fever? How often has serous purging attracted his attention when struggling with the same disease; and when did he fail to see them both leave his patients as soon as the Protean monster, congestion, was disarmed of its power, by the re-establishment of biliary secretion? Neither are the spasms and collapse peculiar to cholera: the first are nothing more than a high degree of subsultus tendinum, and both have been seen in this country too often in our most sickly falls. The whole phenomena, attendant on spasmodic cholera, belong incontrovertably, in some degree, to our autumnal epidemics. The time of its appearance, progress and termina-

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tion, the caste of persons whom it attacks, the symptoms the localities in which it dwells, and every thing in relation to its nature, tallies well with what has been repeatedly seen in this country. It prevailed in Montreal, New-York, Baltimore, Louisville, Vicksburgh, New-Orleans, and the farms bordering on the Potomac, exactly under the circumstances, and in the parts of those places, heretofore celebrated as the seats of bilious fever. If not of common origin, why should it always select as the vantage ground, from which to hurl its shafts, the identical old arenas of autumnal disease? And yet, our enquiries are sought to be stayed, and our energies paralyzed, by the cry of its being a "great unknown." But the illustrious Professor of the Theory and Practice of Medicine in Transylvania University, around whose principles, as nuclei, the facts of the profession will continue to gather, until the sun of medical science shall shine upon an unclouded field, has disrobed it of the Cimmerian darkness, in which others have involved it, and taught us the true philosophy of cholera.

We now proceed to give a narrative of its appearance in Louisville, with the humble design of contributing facts for the history of the disease for future times, rather than with any hope of "teaching our brethren wisdom;" an undertaking which, on account of our inexperience, we should wish to decline.

Louisville is situated on a beautiful plain, running back from the first bank of the Ohio river, and a portion of Beargrass creek is, by the act of incorporation, included in the city limits. Along the bank of the river runs Water street, which is nearly at all times very filthy in some parts, but in others quite the reverse. A portion of this street ranges with the mouth of Beargrass, which was uncommonly low in October. Had we been prepared for the appearance of the cholera this fall, this street is the one, above all others, we should have selected as the theatre for its first operations; and in point of fact, its first victims fell there. This conviction would have been formed from a knowledge of its habitudes in other places; but we confess, we did not anticipate

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a visit from it this fall, simply on account of the unusual immunity of the citizens generally from disease, of every kind, and the absence of all those causes known to be favorable to its operations. A few days rain, however, in the first of October, dispelled the illusion, and opened to our view the epidemic in all its horrors. Within a space of forty yards square, there were eight cases, and the houses in which they occurred all opened into the most filthy back yard we ever saw. A large family that lived in the house adjoining, which had no communication with this yard, all escaped an attack.

After nearly every resident within the above mentioned space had been attacked, several cart loads of filth were removed from the yard, and it was then not a very desirable spot for health. These eight cases were among the first here. It did not confine itself to that part of the city, but, wherever miasmata could be engendered, there it appeared. We have the authority of a physician of extensive experience and minute observation, for saying, that its range of action was confined to the usual localities of our autumnal diseases. This was the case also in the immediate vicinity. At Geiger's mill, and in the Pond settlement, celebrated as pest-houses of autumnal fevers, the epidemic of 1832 held a heavy hand. In three families near Geiger's mill, there were seventeen attacks and nine deaths. All of these families lived above the dam, and were directly under the influence of the emanations arising from the low stage of the back water. Its ravages up the creek were dreadful. Even Dr. Pendergrast, the unyielding opponent to the doctrine of its miasmatic nature, says, in a letter to the Citizens' Board of Health, that "the cases which did occur, (in June, July, and August,) were contiguous to masses of filth and other sources of malaria."

The epidemic began here on the 4th of October, immediately after a very rainy spell of weather, and continued, with various degrees of violence, until the 13th or 14th of November, when, under the influence of fine weather, it left us entirely. On the 13th October, the City Council appointed

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a Board of Health, a portion of the duties of which was to make a daily report of the number of deaths. These daily reports, unsatisfactory as they are, being nothing more in fact than the reports of the city sexton, constitute our only data, and we accordingly give the aggregate amount of deaths, reported by them, from the 5th of October up to the 25th of the same month, at which time their business ceased.

From October 5th to October 25th, embracing a period of twenty days, the number of deaths reported, as having occurred in the city, was sixty-four, to which add six at Shippingport and six at Portland, on the 24th of October, and not embraced in the report, and it gives seventy-six deaths.

A great defect in this mode of reporting, is seen at once, in the absence of all attempts at ascertaining the comparative fatality, by the number of attacks. The Citizens' Board of Health, which went into operation on the 26th of October, supplied the deficiency, as far as was in their power:—they reported daily, from the day of their organization up to the 12th of November, inclusive. This embraces a period of eighteen days, in which time they reported one hundred and thirty-eight cases and fifty deaths; making in all one hundred and twenty-two deaths officially reported.

But this was very far from being the full amount, and as all attempts to ascertain the truth would turn upon conjecture, we give it up as futile. It would be interesting to the medical philosopher to examine, in his study of epidemic diseases, and something like an approximation to the truth might be made, should it ever visit us again, if physicians could be induced to report every case in their practice to competent tribunals.

We have thus given such a topographical and statistical view of the matter, as the circumstances of the case permitted. That it is very imperfect, we readily concede, but if our own desires could have obtained, it should have been otherwise. During the prevalence of an epidemic, the anxiety and fatigue of a physician give him but little time for noting circumstances, as minutely as they should be, and pre-

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serving such data as will, in all respects, be useful to the profession. But enough has been said, perhaps, of its general nature—we now turn our attention to its pathology, and the remedial plan found most successful in our hands.

That an accumulation of blood in the venous cavity and its various ramifications, is capable of producing all the effects observed in cholera, will be readily granted, by all who have studied the subject with that diligence and care which its immense importance demands. Every effect, or symptom, speaking in medical parlance, points plainly to it as the cause, from which the evil arises—and in every case where the venous twigs were awakened from their repose and kept in action, the patient recovered. What, indeed, is more common, than a diarrhœa proceeding from a congestion of the blood vessels? And that the same cause, in another degree, is present in the spasmodic stage, is equally as well sustained by the phenomena present, as any other principle in the profession. And who, that has witnessed in the stage of collapse, the haggard countenance, the sunken eye, swaggering look, shrunken features, dry husky voice, and restless sleep, can misunderstand or misapprehend the nature of the language this series of symptoms speaks? No physician called at this stage of the disease, would hesitate in calling it a case of congestive typhus, and it is in fact nothing more than cholera morbus, and typhus fever, with an aggravation of the subsultus tendinum, concentered in one affection.

We could not have desired better success in the application of curative agents, than we had with those flowing out this view of the case. The leading remedies were, calomel, the lancet, and rubefacients; sometimes we resorted to adjuvants for the calomel, but by no means in every case; it was generally found competent of itself to the performance of all that was required of it. In forty-two cases, treated by my partner and myself, not one fell a victim to the disease;—and all the credit for this success is cheerfully given to its proper source—Professor Cooke. We merely put in practice the principles taught by him, and not the least im-

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portant one, was that so frequently referred to by him, viz. "never to begin the treatment of a disease during an epidemic, with small doses, and thus sacrifice patients, by playing with the disease in order to learn its cure." Hydras are not to be destroyed by straws, and we accordingly began always with the exhibition of a bold dose at once, and rarely had any trouble with the disease afterwards. Instead of giving twenty or thirty grains of calomel at intervals, until one hundred were taken, we gave the one hundred at once, and never had any cause to repent it. We close with an account of several cases.

The first case here reported, and *the first case cured*, was treated by Mr. J. M. Bush, who has kindly furnished me with the particulars of the case. Too much cannot be said in praise of this young man. Ardently devoted to that science which he has chosen as his profession, his exertions are constantly directed to those means that will advance its interests. He discoursed with the pestilence in its secret retreats, and made himself familiar with its habits, by marking every step of its progress. At the call of suffering humanity, he left the chambers of repose to visit the hovels of wretchedness and want. Though the subject of the following case was unknown to him, and deserted by all her friends in the struggle between life and death, he stood by her, and sustained her in her afflictions, and gave her his time and services, and paid the expenses of her nursing himself. He is now attending a course of lectures, preparatory to offering himself a candidate for the degree of M. D. Such a man cannot receive honor from an earthly institution; its highest honors will receive ornament from him.

1. About the 11th or 12th of October, Mrs. Hall, living on Fifth Cross near Water street, was attacked very violently with vomiting, serous purging, and cramps in the extremities distressing beyond description. A steam doctor, one of those intellectual suns which sometimes throws into the shade the mere driveller who follows the dull pursuit of principles, undertook her treatment, and attended her until 12 o'clock at night, when finding herself much worse, she dismissed

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him and accepted the services of Mr. Bush. At this time there was scarce a loop to hang a hope upon, but finding her pulse laboring under great oppression, and the extremities getting cold, he bled her to the amount of a quart, with the happiest effect; the pulse rose, the whole body became warm, spasms ceased, but the vomiting and purging of rice-water continued. A mustard seed cataplasm, mixed with spts. turpentine, was then applied all over the abdomen, and, to use the language of Mr. Bush, "the effect was happy in allaying the vomiting." He left her soon after with a dose of medicine, fifty grains of calomel and one grain of opium, directing it to be taken immediately; but returned in a few hours and found his directions had been neglected—he administered it himself immediately, and repeated it every two hours until she had taken one hundred and eighty grains of calomel, when it commenced purging, first green, then black, and finally tar-like evacuations. Medicine was continued until her evacuations became natural, her tongue clean, and appetite returned with sharpness, but she was unable to walk for several days after, on account of the violence her locomotive muscles had sustained from the spasms. I saw her myself on the sixth day from the subsidence of the "cramps," and she was then unable to walk, though perfectly well in every other respect. There were knots then nearly as large as a hen's egg in the "belly" of the flexor muscles of the leg, and large blue spots near the insertion of the flexors of the hands.

Query. If an accumulation of blood in the great venous trunks behind the heart, had nothing to do with the spasms in this case, why did they cease by the employment of those means which enabled the heart to resume its action, shown by the rise of the pulse after the bleeding?

2. Kitty, a negro girl, aged 11 years, in the service of Mr. Labat of this place, was attacked with spasms on the 14th of October, and we were called immediately to see her. By the time we reached her, the spasms had left her, but she was in almost a hopeless condition; without pulse in the radial artery, oppressed breathing, vomiting and purging, rice-

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water discharges;—she had had this watery diarrhœa for twenty-four hours before the spasms came on. My partner gave her one hundred grains of submur. hydrarg., while I was preparing to envelope her extremities, which were perfectly cold, in mustard seed poultices. Soon after this she was put into a hack and started off to the house of her owner, but she was refused admittance there, under the impression of contagion, and the brutal hackman threw her out of his vehicle into a mud-hole. I could not find her again (and in truth I was not anxious, for I expected to find her lifeless,) until evening, when a messenger was sent for me, who conducted me to her. I thought her condition as bad as it could possibly be; excessive purging of serum, vomiting, extremities cold, pulseless at the wrist, haggard countenance, swaggering look from the eye, great thirst, and the hands looked as if they had been long soaked in water, and the mustard had not excited any action in the skin. In order to restore an equilibrium in the circulation, I attempted to give her an emetic, but could not get her to swallow it. I then determined to place my whole reliance on calomel, seventy grains of which I put on her tongue, and washed it down with cold water. At night I visited her again, and finding no amendment, and that the spasms had returned, I repeated the calomel.—Monday, 15th, I went down again; the vomiting had ceased in some degree, together with the purging, but she was still pulseless, and covered with a cold clammy sweat, which lasted about eight hours; and, to prevent repetition, I may as well state, that the pulse did not return until Tuesday the 16th, in the evening. Up to this time, she took about four hundred and fifty grains submurias hydrargyri. The pulse returned, with the re-establishment of biliary secretion, the return of which was announced by its usual forerunner, black and tar-like evacuations. One hundred and fifty grains more of calomel restored her to health, and on Thursday the 18th, I discharged her cured, without having had a single symptom of ptyalism. On Tuesday, 16th, this case, while in its collapsed state, was visited by Dr. Roberts of Frankfort, and J. M. Bush of this place.

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The two following cases were furnished, at my request, by my partner, William N. Merriwether, M. D.

3. Robert Davis, a vigorous and healthy man, of temperate habits, ætat twenty-four years, began complaining in the morning of the 11th October, with diarrhœa, which continued to increase in all its essential features through the night; towards morning vomitings and spasms came on, with insatiable thirst.

I was called about 7 o'clock, A. M. on the 12th, and found the patient laboring under vomiting and purging of a whitish fluid, in great quantities, with the most agonizing spasms of the muscles of the abdomen, back and extremities. On examining the case minutely, the tongue was found covered with a white tenacious coat, the calibre of the radial artery contracted to a small size, but the pulse corded and active, skin cool, but not cold, countenance anxious, eyes sunken, with a peculiar, heavy and drunken aspect.

In this state of things I bled him immediately from a large orifice, and took thirty-two ounces from him; this mitigated the violence of the spasms forthwith; the rhymth of the pulse expanded finely, and by the application of warmth to the feet and hands, the circulation and temperature were poised, and the general appearance of the patient greatly improved. I now gave him sixty grains of calomel, and left him.

1 o'clock, P. M. I paid him a visit, and found the vomiting and serous purging had, to a considerable extent, ceased; he did not complain of any pain whatever; but there was no external manifestation that the calomel had acted on the liver. After some little time, my partner called to see him, and finding the stomach somewhat irritable, applied a mustard seed poultice over the stomach, and ordered one ounce oleum ricini. In about two hours, the medicine brought away dark, consistent, and fœted discharges. Purgative pills of calomel, aloes and rhubarb, were now ordered, and the discharges became green and finally natural, the patient continually improving

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under the operation of the pills, and on the 13th was walking the streets.

4. Jared Bull, aged 18 years, rather delicately constructed, of sanguine temperament, and regular habits, complained on the 17th October, of a slight diarrhœa, which did not excite any uneasiness, and he retired to rest at his usual bedtime, without any apprehension of danger, and in his own language "tolerably well." About four o'clock in the morning, he was attacked with violent vomiting, *without purging*, giddiness of the head, and an indescribable sensation of weakness. I was called about 7 o'clock, three hours after the disease was clearly marked, and found him in the following condition. The pulse was a mere undulating line under the fingers, vomiting and spasms every twenty minutes; complained of great heaviness and oppression in the head and stomach, tongue white and moist, thirst excessive, cold clammy skin, appearance of the countenance sunken and ghastly; the skin of the extremities cold and corrugated, as though they had undergone the process of maceration, *and the secretion of urine totally suppressed.*

In this case there was no discharge of the common colourless secretion from the bowels, after the commencement of vomiting, but a sensation of fulness in the lower part of the abdomen, with frequent unavailing efforts to discharge the bowels. Here was a patient rapidly collapsing, before any remedial agents were put in requisition for his recovery; and my hopes of finally relieving him were very faint indeed. But what did my duty to my patient require me to do? Was I to fold my hands in meek submission, and barely attempt, by a temporising and soothing course, to smooth his passage to the grave; or was I to endeavor, by a bold and decisive effort, to arrest the march of death, and secure if possible the recovery of the young man? I determined at once upon the latter, and accordingly instituted the following therapeutic plan. I had the surface of the abdomen and extremities covered with mustard seed cataplasms, into the composition of which, the spts. terebinth. et pulv. canthar. entered largely.

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I then ordered one hundred grains of calomel to be given immediately, and repeated every two hours. The medicine was faithfully administered by his brother, until he had taken three hundred grains. This not having operated, I combined the same amount of calomel with sixty grains of scammony, which in two hours produced a very abundant dark green and consistent evacuation. I now gave him, fearing the constitutional influence of calomel, scammony, aloes and rhubarb, in sixty grain doses, so as to keep up the discharges from the liver, until the natural secretions were restored, which took place about midnight.

It would be proper for me to remark here, that the general appearance of the case grew more alarming continually, in every point of view, until the evacuations above mentioned occurred;—as soon, however, as the desirable end was obtained, the hopes of every friend began to brighten; for a change for the better was immediately visible, and the patient expressed himself relieved at every subsequent discharge, until the next day (the 19th), at which time I discharged him, with general instructions, relative to diet and the solvent condition of the bowels.

ART. VII.—*Cure of Scrofula by the use of Caustic.* By DR. DANIEL L. SAUNDERS, of Tennessee.

NOTWITHSTANDING this patient had all the general symptoms of scrofula, I shall not pretend to say that it was the disease of the glandular or lymphatic system usually developed in a "scrofulous diathesis," and which, by medical writers, has been generally pronounced incurable. Nor shall I hold that the treatment here given, will succeed in all other cases of a similar nature, this being my only trial with it.

Tom, a negro, aged 21 years, was, three years prior to his application, first afflicted with a swelling of the parotid, the submaxillary and other lymphatic glands upon the right side

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of his neck, shoulder and under jaw; though at this time he felt no disorder of the general system. His strength, his appetite, and his health in general, were good. In six months, however, the inflammation of these glands advanced to suppuration; though it was not attended by either pain or heat; but increased slowly to a state of tumefaction, which, on being punctured, discharged a watery fluid, somewhat commingled with a whitish matter, though no well digested pus. The patient states that the tumours upon being punctured, subsided and partially healed. But were again reproduced and opened many times in succession.

At length, however, the health of his constitution was affected—digestion was impaired, his strength enfeebled, and his system on the wane. At this stage it was that my professional aid was solicited.

The patient was forthwith removed to my own residence, in order that he might have daily attention. And here I must beg permission to suggest to country physicians the great importance of having all such chronic diseases immediately under their own inspection, whenever it may be practicable. By this means the effects of remedies may be better seen, and in truth the neglect of them often prevented. It is moreover, literally impossible to confine such patients to any prescribed regimen, except their own prudence is such as may become the chief superintendent. Hence it is that some practitioners have acquired great fame in the cure of these diseases, while others, not inferior in point of science, have the mortification to see the virtue of their remedies questioned, their own skill impeached, and their visits superceded. But to return.

Upon examining into the nature of my patient's disease, I found the right parotid with several glands of his neck much enlarged and discharging a fluid as described above. I now directed my inquiries with a view to ascertain whether or not there was any cause to suspect that the disease in question had originated from the use of mercury. Upon which the owner of the boy assured me that he had never taken a

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dose of mercury in any form whatever, till administered for his present affliction.

The first step of a cure, was the removal of the diseased gland. Having been well apprised of the difficulties attending the extirpation of the parotid with the knife, I resolved to make trial of the caustic. For which diluted muriatic (chloric) acid was preferred. The patient was now subjected to the following treatment—viz.

Morning and evening he was taken to a spring affording cold water, and placed upon a bench constructed for the purpose, where many pitchers of water were consecutively teemed upon the diseased parts. After the flesh had been dried, a small brush was dipped in the acid with which (the issues having been previously enlarged) the ulcers were well touched. A pill consisting of

Calomel - - grs. 2,
Pulv. Rhub. - grs. 2,
Tart. Emet. - one 8th of a grain,

was exhibited three times every other day. His regimen, that usually prescribed for scrofula patients,

This course of treatment was continued six weeks. It being then believed that the diseased glands were pretty well removed, the use of the caustic was discontinued; and the ulcer permitted to heal under the use of the other means. The diseased parts had now assumed a healthy aspect—the tumefied flesh become firm and elastic (it must be recollected that no cutaneous changes were perceiveable, as my patient was a black man,) to the touch—and the edges of the wound of a healthy and healing appearance, while the boy had measurably recovered his general health.

In a few weeks more, the ulcers were entirely healed; the patient regained his strength and activity, and is now (six months from the time of his discharge,) in good health.

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ART. VIII.—*Case of successful Amputation through the Shoulder joint.* By N. N. SMITH, M. D. of Decatur, Georgia.

THE subject of this operation was Mrs. Nancy F. Montgomery, a lady aged 51 years, and of feeble health. The disease for which the operation was performed was an exastosis of the humerus of the right side. It was of ten years continuance, and had been twice unsuccessfully exsected. I was first consulted in the case during the summer of 1827. On examination, I then found the diseased growth to have occupied the whole of the upper half of the humerus, to have completely disorganized the texture of the bone, and to have interfered materially with the articulation of the shoulder-joint. I then told the patient that nothing could be done in this situation of the disease; and that the only resort for successful cure was an operation through this joint; which at her time of life and in her precarious state of health, I would only recommend in case of extreme emergency and as a dernier resort.

In April 1832 I was again summoned to visit the case, and on examination found the size of the tumour to have increased very much, measuring twenty-eight and a half inches in circumference at the shoulder joint; rising superiorly in mushroom form on a level with the ear, anteriorly, inferiorly and posteriorly it lay close on the ribs. Ulceration had taken place extensively on the front of the arm, from which I removed a large quantity of osteo-cartilaginous substance in a sloughing condition. The smell was extremely offensive. Sympathetic fever had supervened and her health was fast declining.

Under these circumstances I remarked to the lady, that the time of extreme emergency, to which I had before alluded had come, and that she had now to determine between the two matters; an operation, the success of which was prob-

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lematical; or wait the result of the disease, which promised soon to be fatal. She replied, that she was instructed "if thy right arm offend thee, cut it off, and cast it from thee," and she was willing to have this literally complied with in her case.

By my request, Doctors J. M. Cunningham and S. B. McNees were called in consultation, who thought the operation practicable and imperiously demanded. After keeping her for some days on a course of laxitives with bark and vitriol, as preparatory,—assisted by Doctors Cunningham, McNees and Morris, I proceeded to the operation in the following manner. First, as precautionary, I secured the axillary artery. Then with the common amputating knife, I made an incision through the integument, somewhat more than semicircular, extending from the anterior to the posterior axilla. The muscles forming the shoulder joint being all absorbed and their places occupied by the diseased growth, the integument only remained covering the tumour, which with the common scalpel I dissected up to form my flap. Then taking the catling, with one stroke posteriorly, one anteriorly, and one carried downward and forward, I removed the arm. The artery lying in a crevice of the tumour was divided by the last stroke of the knife above where it was secured, and above where it gave off the anterior and posterior circumflex, with the external mamary artery, so that it was, in truth, the subclavian artery which was taken up. The securing of this artery gave a most powerful shock to the action of the heart, from which reaction was not completely established in less than three hours. The flap was now adjusted and drawn together by the interrupted suture and adhesive strips. Burned cotton was applied as a compress, confined by the common roller bandage. On the 9th day after the operation the first dressing was removed, when more than two thirds of the wound was cured by the first intention. The ligature confining the artery came away on the 26th day, and at the end of the fourth week the wound completely cured. The gene-

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ral health of the patient improved from the day of the operation, and the recovery complete.

The tumour, with the forearm attached, weighed when removed, 12¼ lbs.

In the performance of this operation, I was prevented by the disorganization occasioned by the diseased growth from attending to any systematic rules laid down by surgical writers. The plan was such as suggested itself to me at the first view, and such as succeeded in a manner equal to my most sanguine expectations.

REVIEW.

ART. IX.—*The Principles of Medicine, founded on the Structure and Functions of the Animal Organism.* By SAMUEL JACKSON, M. D. Assistant to the Professor of the Institutes and Practice of Medicine and Clinical Medicine in the University of Pennsylvania; Lecturer on Therapeutics and Materia Medica in the Medical Institute of Philadelphia; Vice President of the Philadelphia Medical Society; Vice President of the College of Pharmacy; Member of the American Philosophical Society, &c. Philadelphia: Carey and Lea. One vol. 8vo. pp. 630.

THERE are sundry reasons for believing, that this volume will attract, for a time, an unusual share of attention, and produce, also for a time, no common influence on the medical mind of our country, especially on that of the junior portion of the Profession. Whether these effects are destined to be lasting? is a question whose solution we deem it safest, as well as most becoming, to leave to future occurrences. An attempt to solve it ourselves might be deemed premature, if not presumptuous, and could have no material bearing, either affirmative or negative, on its final decision. We shall ven-

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ture however to state some of the grounds of our belief, that the work will receive attention and produce effect.

Added to his reputation, as a practitioner, and a man of reading in his profession, its author is a ready and popular teacher of medicine, and lectures annually to the largest medical class in the United States. The volume before us, therefore, covering the same ground, over which he passes, in his lectures, will serve him as a text-book, for which we presume it is partly intended. This circumstance alone will give it weight and authority with his pupils, and through them, can scarcely fail to recommend it to others. Nor are further causes of a like tendency wanting. The work has been gotten up and brought out under a degree of pomp and blazonry unprecedented in our country. No other production of an American pen, which we now recollect—certainly no medical production—has been so heralded into notice. The term of its incubation was unusually long. When the author first engaged in it (we think from five to six years ago) the event was proclaimed, in terms of no very limited gratulation and promise, in an eastern Periodical (perhaps more than one), and frequent references were afterwards made to his progress in it; all which necessarily concurred to render it, at the beginning, and continue it, afterwards, an object of attention. It was reviewed, or rather eulogized in a distinguished Journal, *before its publication*, a circumstance which, if not unique, is very unusual in the United States; and, in the same number of that Journal, appeared the following editorial advertisement.

"Knowing the *anxiety*" (a strong term) "of the *profession*" (physicians collectively) "in relation to the forthcoming work of Dr. Jackson, we applied to the publishers for an early copy, and having been obligingly furnished with one, we are enabled to lay before our readers a review of it."

The publishers of the work having announced, on the 1st of May (the date of the number of the Journal), that the volume would appear on the 15th of the month, subjoined the following notice.

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"As the Edition is not large, persons who desire copies are requested to send their orders *early* to their respective Booksellers."

One clause in the review already referred to we deem it right to extract. The reader will perceive our reason for this, without our sugesting it.

"If clearness of conception, soundness of principle, and lucidness of detail, constitute the merits of a work, we feel confident in the assertion that the one we have under consideration (Dr. Jackson's "Principles of Medicine") will be surpassed in excellence by few—either in this or any other country. *Its publication will constitute an important epoch in the history of American* medical literature; and no one who is at all ambitious of acquiring sound principles in his profession should fail to avail himself of an opportunity of drawing them from so pure a source.*" (See Amer. Jour. of the Med. Scien. May No. p. 196.)

The object of such show in advertising, and such panegyric in journalizing and reviewing, can scarcely be mistaken. They usher the volume to an expecting and excited public, with peculiar eclat; a circumstance highly favorable to its first reception. Again; the book is large and well printed, the paper is good, and it treats of many important topics.

Such are some of the causes, which induce us to believe, that the "Principles of Medicine" will attract notice and produce effect. Another, and the last we shall notice is, that many statements, which we deem doubtful, some of them er-

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*This prediction we think the more extraordinary, from the fact, that we find nothing in the volume which we are willing to recognize as American, except the paper, type-work, and binding. The matter is entirely foreign—derived we mean from foreign productions. If there be in the whole book one original American *thought*, (a mere conjecture does not deserve to be so called) it has escaped our notice. True; the putting-together of the materials and their trappings belong to this country. But *if they* are to constitute an "epoch" in American medical literature, it will be a very obscure one. Foreign nations will never hail it, as

"Magnus ab integro sæclorum nascitur ordo."

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roneous, are made with a confidence bordering on dogmatism. This will have much influence with a large portion of readers, strength of assertion being received by them as a substitute for strength of argument.

But our business is to speak of the matter and qualities of the work; for it is our intention to review it *critically* as well as analytically, and, instead of eulogy, to do it justice. We shall not rest satisfied with giving a mere outline of its contents; on some parts of it we shall assume the right to sit in judgment, and pronounce on their merits. For this too we have our reasons, which to us seem so powerful, that they bring us to our task, under a sense of duty which we cannot resist. A few of them we shall disclose, and trust they will be sufficient to justify our course.

The work professes to be *elementary*, and to be intended for "students" of medicine, who are qualified to receive and credit what they read, rather than to examine and judge of it. They are to learn from the book some of the fundamentals of their profession, on which the superstructure is to be afterwards erected. The matter it contains, therefore, should be strictly true, as far as truth on the subject of it is developed. If any unsettled views be admitted into it, they should be represented as unsettled, and offered only for what they are worth; and every thing hypothetical and visionary should be excluded. It is of great moment that medical pupils, when commencing their studies, be soundly instructed. A failure in this must injure them professionally during their whole lives, unless they have intellects of a superior cast, capable of mastering early prejudices, and discovering and rejecting the errors of a faulty education. That "first impressions are lasting" is as true in relation to students of medicine, as to any other class of learners. The books first placed in their hands, therefore, should be as free from every thing that may puzzle or mislead, as the state of the science admits. All they contain should be the result of clear thinking and accurate knowledge. On this ground the production we are considering, like every other guide for youth, ought to be

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passed through an ordeal that will try it thoroughly. If it bear the test let it be adopted; if not, rejected, and something more pure and substantial selected in its place. Another reason not less cogent, and enjoining a strict examination of it, is, that it is a work of lofty pretension. In language, not boastful, yet sufficiently confident and expressive, its author asserts its claim to a high standing—at least in its aim. He pronounces the present an "epoch," in which medicine has assumed a new "direction", and represents his book as intended "to serve the student as *an indicator to the line of march* now taken up by the science." Such is his language. In another place he speaks of it as designed "for the establishment of *principles of general application*, derived from an analysis of the phenomena manifested in the structure and functions of the animal organism." In plain terms, it is put forth as a sort of American "Novum Organum" in medicine —a great beacon-light, directing benighted mariners how to steer. An aim more lofty and ambitious than this, scarcely belongs to the profession.

Such are the considerations which not only justify a severe scrutiny of the production, but demand it. It is such a book only, whose errors and faults can do much mischief. Publications of a humble cast are comparatively innocent, and may be suffered to pass into oblivion without notice. We shall therefore proceed to our task, under a deep sense of what is due from us to American Medicine.

That the reader may have some standard, to aid him in determining for himself the merits of this volume, we shall briefly mention a few of the qualities admitted to be indispensable in an elementary work.

Its style should be simple, precise, and perspicuous, its positions accurate, its views well defined, and its illustrations clear and direct to the point. In a particular manner, it should be free from all equivocality of expression, grammatically correct, and written in the true idiom of the language to which it belongs. In fine; it ought to be as intelligible as possible to every capacity, and an example of sound taste in

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composition; and there should be nothing in it to mislead or bewilder, or to contribute in any way to loose thinking.

In such a work, a style highly ambitious and periphrastical, groaning under a weight of long words rarely used by good writers, abounding in ambiguous phrases, imitating the idiom of a foreign language, and having almost every noun coupled to an epithet, is entirely out of place. It not only indicates bad taste and the want of a knowledge of fitness in the writer, but is a serious fault, in as much as it often merges sense in sound, and conceals the fruit, if there be any, under the leaves. In which of these two modes the volume before us is written, will be seen presently.

Again; an elementary work should never deal in subtilties, labored refinements, deep abstractions, or any sort of metaphysical discussions. Nor should it contain efforts to make distinctions, where no substantial differences exist. Unless it be free from such faults, it will never be studied with satisfaction by pupils; nor will it be understood by them though they should study it, nor useful, though they might comprehend it. The true elements of a science, and all other matters practically useful, are plain and simple, and may be plainly and simply communicated, either orally or in writing, and usually are so, by those who have a competent knowledge of them. When a writer expresses himself obscurely, it is because his views are obscure; and if he use a great redundancy of words, often attempting to interpret a previous expression by two or three subsequent ones, he is a loose, inaccurate thinker, and not well qualified for the production of an elementary work. Clear and definite thought never fails to be expressed in definite and well chosen terms.

It might seem censoriously critical to impute all these faults to the book we are examining; yet we apprehend the reader will find ground to believe, from extracts which will be laid before him hereafter, that it is free from but few of them. It certainly abounds in most of them, in a degree we have never before witnessed in an elementary production. Indeed, in the entire range of our reading, we cannot call to mind a

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single composition in medical literature, that surpasses it in redundancy, indefiniteness, and mystification of style. Few equal it, in literature of any kind.

Lastly; though an elementary work ought not to be meager; neither should it be superabundant in discussion and detail. In different parts of his book, Dr. Jackson has committed both these faults. On some points he is too brief, and on others too prolix. Taken entire, his "Principles" are too long for an outline, and too short for a full treatise. They are made up of a collection of matter, much of it interesting and important, but neither well digested, nor in proper symmetry. But justice calls on us for the proof of *some* of these charges. To give proof and suitable illustration of the *whole* of them, would be to write a volume. We shall begin with that relating to style, which first attracts a reader's attention, because it is the medium of communication between him and the writer.

Under this head we have charged our author, in general terms, with sundry faults. We now say more pointedly and definitely, that his style is neither "simple, precise, perspicuous," in good taste, nor in the true idiom of the English tongue. On the contrary, it is inordinately ambitious, periphrastical, tumid, not to say bombastic, superabundant in epithets and words of great length and sound, and, in manner, a sort of hybridous mixture of French and English. And we add, that examples of some of these faults may be found in every page. They are interwoven in the texture of the whole composition.

In the very title of the book simplicity of style is violated. "The Principles of Medicine, founded on the Structure and Functions of the *Animal Organism.*" The phrase printed in Italics is any thing but simple and tasteful English. True; it consists of two English words; but no good writer would have thus united them. It has a foreign, and we must add, an affected aspect. Indeed, to us, the whole title seems affected, and so mystified, that we would be unwilling to undertake to render its meaning in genuine English. Besides;

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to say the "structure of organism," as the title does, is the same as to say the *structure of structure*, or the *organization of organism!* It is broad tautology, another fault, in which the diction of the work abounds.

But, let the title of the book pass. Its other sins against good writing, which we have yet to exemplify, throw that into deep shade. If we mistake not, the following extract from the Preface will so substantiate our charge of a want of simplicity and precision in the work, as to be an ample apology in us for adducing no further evidence on those points.

"Subject to endless variety in the combination of its remote and its proximate organic elements, in the energy of its forces, the manifestation of its phenomena, and modes of existence, the animal economy requires, in order to its perfect comprehension, the most profound investigation, combined with deep and careful reflection. Every case presents itself as a distinct problem,* is to be studied separately, and its specific nature and relations are to be deduced and solved by

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*In avowing this sentiment Dr. Jackson shows himself to be much more of a Homœopath, than of a Broussaian. One of the fundamental dogmas of the the German school is, that

"With the exception of a few maladies arising from miasms and certain viruses, *every disease is an individuality which must be considered new and peculiar; and a medicine that is found salutary in any one malady, cannot be employed in another merely resembling it*"—and "that *every new case is distinctly a new example of disease!*"

This view of the difference between complaints is not worthy to be affirmed or denied. As a *practical tenet* its own absurdity is its best refutation. Our author's assertion, that "Every case presents itself as a distinct problem" is of the same perishable texture. It is surprising that men of any sober discernment should thus amuse themselves in spinning cobwebs, which the slightest touch of reason must demolish!

In another respect Dr. Jackson reminds us of the extravagancies of the *Homœopaths;* we allude to the minuteness of his distinctions and divisions. The medicinal agents of those theorists are known to be all considered by them as *pathogenetics*, i. e. producers of *morbid symptoms;* and of such symptoms, the strychnos nux vomica produces *twelve hundred!!* What respect can any one feel for such idle fancies, especially when uttered with Delphic dogmatism!—Yet, some Broussaian *practical tenets* are scarcely less visionary! And of these the Doctor has been the warmest American advocate.

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the application of fixed principles on the rules of philosophic calculation. The elements of this calculation, the principles that form its radix, are the propositions evolved from the analysis of the phenomena of the organism, a full and comprehensive knowledge of its structure, forces, and functions, in their physiological and pathological modes of being, thoroughly investigated and clearly established by clinical and autopsical observation, and minute anatomical research". (Vid. Pref. p. xii.)

This extract is a collection of striking examples of almost every fault we have ascribed to our author's style. It is inexplicably complex and entangled, unintelligibly obscure, highly ambitious and inflated, loaded with sonorous epithets and other *verba sesquipedalia*, and marked by a manner neither English nor French, but of a *patois* character partaking of both. To us it is a *sealed paragraph*, setting all our efforts to interpret it, and make common sense of it, at defiance. The following is not much better.

"The primitive local irritation, that constitutes what are called essential fevers, is in a majority of cases, the erythemoid inflammation of the gastro-intestinal mucous membrane. From this point are irradiated the morbid impressions that involve other organs, giving greater or less extension and complexity to the original phlogosis, according to its intensity, the irritability of the individual, and the more or less previous healthy condition of the organs. When the gastric irritation, or the erythemoid inflammation of the gastro-mucous tissue declines in intensity, or altogether ceases, either by an appropriate treatment or other causes, the irradiated or sympathetic irritations also decline, and the organs which sympathised in its irritations, return to their natural condition; and the pyretic or febrile symptoms disappear." (Vid. pp. 63–4.)

In strict order, the following extract ought to have stood before the preceding one. But the dislocation will not weaken the testimony it bears to the singularly faulty style of its author.

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"The phenomena of the human organism, structural and functional, physiological and pathological, those that are the effects of remedial agents, of food, and whatever is capable of influencing the economy, are the subjects of observation, can be reduced to experiment, and are cognizable by the senses. They occur after certain modes, they are subjects of causality, they take place in a fixed order of occurrence, and are, consequently, capable of arrangement in the order or series of their occurrence. When these are established, or formulæ of the phenomena of the elemental principles of the animal structure, of the tissues, of the organs and functions in their varied conditions under the influence of normal and abnormal agencies, are constructed, medicine will then possess positive principles of extended application, and will offer the materials for reflection, combination, reasoning, and induction, in every case presented to observation." (Vid. Pref. p. xi.)—Another hieroglyphical paragraph, which Champolion, when living, would have been unable to interpret!—Once more.

"The blood is contaminated with the recremental materials of the decomposed tissues, with foreign unassimilable substances incompatible with organization, and often hostile, from their properties, to the structure, and other matters whose presence deteriorates its healthful constitution."—A sentence of the same length, more ponderous than this, from four, five, and six syllable words, it will be difficult to find. And the book contains hundreds of the same description. Sentences like the following meet the eye in almost every page. "The deep suffusion of the mantling blood in the face and neck of a modest female, the eloquent language of the unuttered thought"—"The centralization and redistribution of impressions and actions, place the viscera in the closest relation with each other, make the impressions and modifications of action induced in one, common to many, and constitute the ganglionic the material organ of the sympathies."—"The mode of being and conservation of living bodies, which is nutrition, an incessant molecular composition and de-

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composition carried on in the intimate texture of all their parts, necessitates the fluid condition of the animal elements, in one stage of their existence."—Some of these expressions are but little short of burlesque; and we should consider them intended to be actually so, did we not know our author to be serious in using them. They are much better suited to the crude ebullitions of a sophomore of *fifteen*, than to the grave productions of a philosopher of *forty-five*.

Perhaps the most puerile fault of our author remains to be noticed. He expresses even the most common professional objects and ideas in language altogether different from that of good and unaffected writers. Instead of treating of the *blood*, he discourses about the "sanguineous fluid"—"the nutrive fluid"—or "the especial nutritive humour." Where others find the *alimentary canal*, he discovers something which he calls the "digestive tube"; and in place of our old and familiar acquaintance, the *distinct* small pox, he introduces to us a stranger, which he baptizes by the name of the "*discrete* small pox"!—And thus perpetually, from page to page, does he attempt to edify us, and excite our wonder or win our applause, by his affected and out-of-the-way phraseology! The consequence is, that his readers either misunderstand him, do not understand him at all, or are compelled to study, with the difficulty of threading the labyrinth of Crete, or of making their way through a Mississippi cane-brake, his new-fangled diction.

The grammatical errors contained in the book are numerous, and many of them striking. As these however may have arisen as much from the fault of the printer and proof-reader, as of the author, we shall notice them no further; the more especially as every scholar can easily detect them.

We have alleged that Dr. Jackson often attempts, in his discussions, to make unfounded distinctions—distinctions we mean, where no appreciable differences exist. A memorable instance of this occurs in his preface. p. xv.

"The systems of practical medicine of the present period may be referred to three classes, as constructed on different

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methods or principles:—1st. Symptomatic medicine, in which groups of symptoms constitute diseases, and exclusively furnish the indications of practice. 2d. Organic medicine, in which diseases are treated in reference to special organs and particular alterations of texture: and 3d. Physiological medicine, in which the modifications of the physiological or vital action of the tissues, and abnormal reaction of organs, are regarded as the essential character of diseases, and the guide to their treatment."

Between the *first* and *third* of these "classes" we can perceive no difference; nor, from the author's own showing, does any exist. What, we ask, are "symptoms" of disease, but "modifications of physiological or vital action"? No one will contend that they are any thing else. Restricted, difficult, and painful respiration, accompanied by a cough and altered expectoration, or no expectoration at all, makes a part of the "symptoms" of pleuritic inflammation. And it also consists, in the strictest meaning of the terms, in "modifications of the physiological or vital action of the tissues" of the respiratory apparatus? To use another of the forms of the Doctor's phraseology (although we do not like it) it is a clear manifestation of "abnormal reaction of the organs" of respiration. Again; a sense of gastric heat and anguish, a painfulness of the scrobiculus cordis to the touch, with some distension of the part, and frequent vomiting are some of the symptoms of gastritis. And are they not also "modifications of the vital action" of the stomach?—the "abnormal reaction" of that organ? No physiologist will reply in the negative.

"Symptomatic medicine" and "Physiological medicine" then, appear to us identical. An attempt to divide and distinguish them, we cannot help regarding as a project involving one of those fanciful refinements, which partakes much more of ingenuity than judgment, belongs to the closet of the visionary, rather than to the sick-room or the hall of science, and can be sustained only by sophistry, in defiance of solid argument. Indeed we have always contended, and do so

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still, that, in the phrase "Physiological medicine," there is much more of *affected* than of *definite* meaning. What, we ask, is its precise meaning, apart from that of other forms of medicine? What novelty of fact, principle, or practice lays a just foundation for it? We ask for information, and trust that our author, or somebody else will favour us with it. Nor do we doubt that many others will be edified by the answer, as well as ourselves. What is there in the doctrines of Broussais to entitle them to be called "physiological", any more than those of Darwin, Cullen, Hoffmann, or Stahl? We do not deny that the former are the more philosophical and correct—great and valuable improvements on the latter. On the contrary, we acknowledge that they are. But they are *only* improvements. Why then they are entitled to a new name, which is denied to the others, we are and always have been at a loss to know. To us it seems a name without a meaning—a mere *vox et præterea nihil.*

Shall we be told, that Dr. Jackson has himself acknowledged, that "Most systems of medicine have been truly physiological"? Why then, we again ask, has he made a set distinction, as if there were a difference *in kind*, while he is compelled to acknowledge that the difference is only *in degree?*—that the one is but an improved condition of the other? If we mistake not, there is much more ostentation than good sense in the assumption of the name. Broussaisism has no more of physiology in it than Cullenism or Hoffmannism; though what it has may be more correct. As to the insinuation that what are denominated the "symptomatic class" of physicians prescribe for symptoms, it is a mistake. To whatever class intelligent and experienced practitioners may belong, they never prescribe *for* symptoms. Directed *by* symptoms, they prescribe for the *disease*—what Professor Rush called the "condition of the system" of the sick.—For every new name or new combination of old names in science, there ought to be a new and substantial reason. What that reason is, as relates to "Symptomatic medicine," we shall be gratified to learn from those who know.

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Of "Organic medicine" it is difficult to speak; because it is scarcely possible to know precisely what is meant by the expression. As a distinct "class in medicine," having any intelligible reference to practice, we doubt its existence, and might deny it. What is it? Our author tells us that it "is of modern origin," and is that class, "in which diseases are treated in reference to special organs and particular alterations of texture." We would be pleased to be informed, at what period of our profession, any disease, except perhaps what has been fancifully called "idiopathic fever," has ever been treated, by enlightened physicians, on any other principle? Have not all the Phlegmasiæ, Hemorrhagiæ, and Locales of Cullen been regarded, since the time of Hippocrates, as seated in some "special organ," and "treated" accordingly? Is not the same true of apoplexy, palsy, epilepsy, asthma, colic, cholera, diarrhœa, and almost every other complaint that can be named? To neither of these questions will any one hazard a negative reply. True; we are much better informed than our predecessors in medicine were, of the actual seat of many diseases, and of the condition of the diseased organs. But they as well as we referred complaints to some "special organs," in the deranged condition of which they supposed them to consist. We surpass them then in accuracy of knowledge, with all the practical advantages accompanying it. But that alone, however fortunate and useful, does not authorize us to institute a new "class in medicine." It only shows that we have made great improvements in an existing class, by new means—chiefly by advancements in healthy and morbid anatomy. From these sources are derived a portion of the recent additions to physiological and pathological science. And to these additions again are to be attributed most of the late improvements in philosophical and many of those in practical medicine. We shall only add, under this head, that the object of all distinguished and truly philosophical writers in medicine, at the present time, is to simplify the science, and disencumber it, as much as pos-

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sible, of technicality and mysticism. And these are the strong features of real improvement in it. But, if we mistake not, the tendency of Dr. Jackson's mode of treating it, is the reverse of this. He would augment its complexity and technicality, by unnecessary divisions and visionary distinctions. Whether his wish be to this effect or not, the course he pursues, and the deep covering of hard technical words he throws over his matter, can lead to no other.

Some of our author's views respecting the treatment of disease, founded on his imaginary "classes in medicine," are singular, and neither sound, nor applicable in practice. Were we inclined to be severe in our strictures, we might pronounce them self-contradictory, without any apprehension of being found in the wrong. They are moreover entirely wanting in definiteness. We shall briefly examine one or two of them, and, to guard against mistake, present them to the reader in the words of the book.

"Symptoms do not constitute in themselves a basis of a sound or safe method of practice. They are the signs, addressed to the senses, of the abnormal state or sufferings of the organs, but do not instruct us, as to the nature of the change that has ensued, which constitutes the disease." (Vid. Pref. p. xv.)

This, we repeat, is a singular doctrine, to be gravely advanced in a book, destined, as we are told, to mark an "epoch" in American medicine. Nor, as we understand it, is it less singular than unsound. What "basis" of practice have we, other than "symptoms" well understood? Palpably none. If we do not practise by them, we must not practise at all, or we must do it "by guess." Though dim enough at times, they are our only guiding stars. We must examine by them, distinguish by them, judge by them, prognosticate by them, and practise by them—simply, we repeat, because there is nothing else to disclose to us the condition of our patient. If symptoms, with all the light thrown on them by morbid anatomy and sound experience (and such light does not change them from symptoms to any thing else) do not inform

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us both of the organ that is suffering, and the nature of the "change that has ensued" in it, whence is the information to be derived? Will our author, or any one in his stead, reply, "from *post mortem* inspections"?—Must we then practise autopsy on our patients before they are dead?—cut into their bodies, with our dissecting knives, to discover the nature of their diseases, before we attempt to cure them? There is no third course, save that of doing nothing. We must either dissect living bodies, practise by symptoms, or abandon our profession, and trust to nature. To prescribe *for* symptoms and *by* symptoms, are very different modes of practice. All enlightened and skilful physicians pursue the latter; all empirics, and none else, the former. To illustrate the subject further.

A man in the prime of life, and of the encephalic temperament, after a fit of intoxication, or long exposure to a burning sun, is attacked with an ardent fever, and acute and violent pain in the head, fierce delirium, and an inability to sleep. His countenance is flushed, his eyes red, watery and protuberant, he is intolerant of light, and has a constant ringing in his ears, or fancies he hears unusual sounds. His carotid and temporal arteries throb violently, his pulse is frequent, quick, hard, and wiry, and his urine scanty and high coloured. Do not these "symptoms" (for they are nothing else) indicate to us, with a clearness, which may be confidently relied on, not only the existence of a morbid affection of the brain, but the "nature of the change" which that organ has sustained? Do they not *demonstrate* that inflammation of the brain or its membranes exists? And have they not been, for centuries, as clearly understood to do so, as they are at present? Unquestionably they have; and all intelligent and experienced physicians have practised in the case accordingly.

Again; a person is attacked with tormina or severe griping in the lower part of the abdomen, accompanied with fever, frequent mucous or muco-sanguineous dejections, passes no natural fæces, and each discharge is followed by tenesmus.

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Do not these "symptoms" point clearly to an affection of the large intestines, especially the rectum, and show that affection to be of an inflammatory "nature"? And have they not been known to do this for hundreds of years? Yes certainly. And in all common complaints physicians look through "symptoms" both to the organ affected, and the "nature of the change that has ensued" in it. In fine; we repeat that they have nothing else to direct them, until the patient dies; and it is then too late, as respects the individual. Their next duty is to open and examine the body, in order to learn how to interpret symptoms, in other similar cases, and make them safe guides to practice. But, says our author;

"The symptoms too are often delusive, being expressed in other organs than the true seat of the disorder. In spasms, convulsions, and paralysis, the muscles exhibit the symptoms or manifestation of the disease, while it is seated in reality in the nervous centres excitative of muscular contraction, and may even be communicated only secondarily to these, having its location in other tissues." (p. xv.)

All this is true. Yet it does not affect, in the slightest degree, the validity of our remarks. The practitioner must still rely on symptoms. Besides; what pathologist does not know, that spasms and paralytic affections of the muscles indicate nervous or cerebral derangement? Such symptoms are universally considered signs of such affections, and have been so considered, almost time out of mind. No matter how we have learnt to interpret these symptoms; and no matter whether they are primitive or secondary, direct or indirect. They are symptoms still, and our only guide to practice. But for symptoms we should be unapprized of the very existence of disease. They alone inform us of its presence. We have been taught moreover, by experience and research, to look through them to what Dr. Jackson calls, in language now his own, and which we trust will never become the settled medical language of our country, "the nervous centres excitative of muscular contraction"!—To pronounce

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such language exceedingly unbecoming in such a book, is to speak mildly of it. In truth it would be boyish in any book. Again, says the Doctor;

"*Physiological medicine* has more *ambitious** pretensions. It attempts to *divine*" (foretell, foreknow, prognosticate, conjecture, guess—the reader may choose either meaning at pleasure)—"It attempts to divine the nature of disease, by discovering the nature of the vital actions and phenomena—the reaction of the organism to impressions—the laws these follow, and the mutations to which they are exposed and suffer, in which last consist the essential character of disease. From these data are inferred positive methods of treatment, calculated on the actual phenomena of disease, the powers and modifying influences on the organs of remedial means." (p. xviii.)

This is mere rhapsody—a collection of words, from which no definite meaning can be drawn. We have sought for one earnestly and in good faith, but to no purpose. The extract is therefore submitted to the reader, to be deciphered by him at his leisure, and according to his pleasure. One interpretation of it appears to us about as good as another.

All that relates to Dr. Jackson's three "classes in medicine" may be thus summed up. That we may be qualified to attain an accurate knowledge of diseases, and of the best modes of treating them; we must first become well versed in

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*This is true. Its "pretensions" are indeed "ambitious." One of the strongest features in the character of Broussais, the founder of what is called "Physiological Medicine," is his boldness in assumption and dogmatism. He attempts to be as dictatorial and absolute in medicine, as his great master Napoleon was in war and civil policy. And this undoubting and unsparing manner has hitherto contributed much to his popularity and success as a writer and teacher. He understands well the maxim "*Fortuna favet fortibus*," and has acted under it with great effect. The very name he has assumed for his doctrines, "PHYSIOLOGICAL MEDICINE," is arrogant, and cannot be recognized by physicians of independent minds and self-respect. It is a contumelious condemnation of all other doctrines. They are "Physiological," as well as it. Broussais professes, moreover, a strict and undeviating adherence to facts, and is yet the most imperious dogmatizer of the age—we mean in medicine.

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anatomy, descriptive and general, healthy and morbid, as well as in healthy and diseased physiology. Having done this, we learn by observation and experience, to discover, through "symptoms," the location of diseases, and the condition of the organs in which they are seated. Then, provided we have a due knowledge of remedies, and of the times and modes of employing them, we are fitted to practise—not otherwise. It does appear to us then, that our author's three "classes in medicine" are but an artificial creation, calculated only for effect, and of no shadow of practical usefulness. It might be clearly shown, had we leisure and room to discuss the subject, that all the substantial materials, which he partitions among the "*three*", belong in reality to *one*. Every class or system of medicine, worthy to be so termed, must embrace a knowledge of "symptoms," which are "morbid physiology," as well as an acquaintance with the seats of diseases and the derangements of structure. In fine; the present enlightened condition of the world requires of us to make an effort to rescue medicine from artificial divisions and studied refinements, and to erect all the solid materials which belong to it into one great system of practical philosophy. And we regret to say, that we consider the tendency of Dr. Jackson's book to be altogether adverse to such an issue. It does not present itself to us as the work of a master spirit, capable of moulding all the parts of it and assimilating them to each other. On the contrary, we think it one of the most complex and entangled productions we have ever read. Hence, there being no natural or strong affinities between the elements which compose it, there is as much difficulty in remembering as there is in understanding it. The subject is evidently too massy and ponderous for the strength of the writer. In our opinion, a SYSTEM OF THE GENUINE PRINCIPLES OF MEDICINE, is yet an important desideratum in our profession.

One point more, and we shall dismiss this subject. Our author alleges that Paris is the most prolific seat of medical improvement, especially in "Organic and Physiological med-

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icine" and Broussais the most distinguished master of those "classes." As relates to this matter, the following interrogatories naturally present themselves. Do physicians treat diseases more successfully in Paris, than elsewhere? and is the practice of Broussais more successful, than that of his contemporaries, either in his own, or in other countries?—In a special manner, does the Broussaian practice, imported into the United States, succeed in a degree beyond that of the usual American practice? To answer either of these questions affirmatively would be very unsafe. In plain terms, it would be contrary to fact. Broussais is a physician of great eminence, and has contributed largely to *medical science;* but it is yet to be proved, that he has made any contributions to medical *practice.* If he has, we know not what they are. In that respect, he resembles not a little the unfortunate Brown, who wrote and lectured on medicine much more ably than he treated diseases. We have no knowledge of a single useful practical process, now recommended or pursued by Broussais, or his followers, which was not familiar to some of the physicians of our own country, long before his name had been heard of by them. Though he has done much to show what disease is, he has done but little to show how to cure it. Like Brown, we repeat, he appears to be more scientific than practical. We would award to him freely, without diminution or alloy, the honours that belong to him—no more. But there are those who do him excessive homage, and ascribe to him discoveries which are not exclusively his. We shall only add, that an attempt to cure the violent diseases of the United States, especially those of the South and West, by his practice, would be scarcely short of *professional charlatanry*—perhaps we should rather say *indirect manslaughter.* Though it might not kill; it would suffer patients to die for want of aid.*

*Judging from what we have ourselves seen of Parisian practice, as well as from the reported treatment of cholera in that capital, we consider it the most feeble and unmeaning practice of the day. It rarely aims a direct and vigorous blow at the root of disease, but deals in palliatives, and struggles with

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In Chap. I, Sect. I, our author treats of "*Organized bodies*," giving a fair, but very brief and common-place view of them. Every thing he has said, and much more, may be found in the original writers of the day. One of the tenets which he adopts and makes his own, calls for a few remarks. It is thus expressed.

"Life is then, as was announced by Brown, called into activity and maintained by stimuli, or *is the consequence of the operation of stimuli or excitants, on organized matter.*"

This is the old Brunonian doctrine of life, very periphrastically expressed, which its author and Professor Rush concisely denominated a "*forced state.*" In whatever language however it may be made known, we deem it radically erroneous, and shall submit to the reader a few of our reasons for thinking it so.

In the material universe there are but two states of existence, *life* and *death;* and they are in direct opposition to each other. As we know of no third state, we are forbidden by the rules of philosophy to imagine one. Every form of matter then is in itself either living or dead, and possesses properties and exhibits phenomena corresponding to its condition. Nor should it be forgotten that life is as positive and substantial a state as death.

One of the most striking and important properties of living matter, is that of taking on and exhibiting a specific sort of action, when subjected to the influence of suitable stimuli. And it is universally acknowledged, that no form of matter destitute of life is susceptible of stimulation, or, in other words, of reaction under the impression of stimuli. A living seed, for example, when stimulated by heat, light, moisture, and air, vegetates according to its kind. The living heart, when stimulated by blood, contracts, the living and healthy

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symptoms. It deserves the title of "Symptomatic medicine," therefore, much better than any other "class." Besides; its frightful unsuccessfulness in cholera proves its inefficiency. We believe there are records to show, that that disease baffled Parisian practice to a more fearful extent than the practice of any other European city.

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stomach, stimulated by food, takes on the digestive process, and the optic nerve in a sound condition, if impressed by light, acts in a manner necessary to vision. But, let these organic substances be dead, and they are impassive to stimuli. The seed will be uninfluenced, except chemically, by heat, light, air, and moisture; the heart is unmoved by blood, the stomach by aliment, and the optic nerve by light.

For all this there must be a substantial reason. What is it? Simply that the one form of matter is *dead*, and the other *living*. And these terms have positive and important meanings. They denote differences so great, that they have nothing in common, and which admit of no compromise or approach toward each other. Nor are they superficial or transitory, but as radical and permanent as nature can make them. To state this position is to prove it; for it is self-evident. Life is a mode of being concentred essentially in itself; and therefore, as will presently appear, it may be regarded as self-dependent. Where it does not already exist, it cannot be communicated by incidental impressions from without. When it does exist, it is sensitive to such impressions, and recognizes them openly by reaction; but they do not constitute it, or make, by their influence, any part of it. To contend for the contrary of this, is to substitute the effect for the cause. In innumerable cases, dead seeds differ neither in organization, nor any other perceptible quality, from living ones. No one can pronounce them dead, until he has tried them. Yet they cannot be made to vegetate, for a plain reason; they have lost their susceptibility to the influence of stimuli. *And in that susceptibility, and a power to manifest it by action, does their life consist.* Restore these, and the seeds will vegetate. Remove them again, and their vegetation will cease. But can stimuli restore them? No certainly. No Brunonian will contend that they can. Life is not then, as our author asserts, "the consequence of their operation." It is something as different from them, and as independent of them, as the property of polished metal, by which it reflects light, is from the act of reflection itself. To use another il-

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lustration of perhaps a more intelligible and stronger character. Life is as entirely and necessarily distinct from the influence of stimuli, as the structure of the steam-engine is from the steam which sets it in motion. Indeed steam bears to the organization of the engine the same relation that stimuli do to living organized matter. Each excites to action; but neither imparts a fitness for action.

Aware of the intricacy of this subject, and solicitous to be fully understood on it, we shall push our illustration a little further.

The organization of the steam-engine is its life—the ground of its susceptibility to the impression of steam. Steam is the stimulus, which excites in it its *vital* action. But that action is not its life. It is only the effect of it, under the influence of impression. Disorganize or seriously derange the engine, and its vital action can no longer be elicited, though steam press on it. Why?—Because its life and susceptibility are extinguished. When the steam-engine is in a sound condition then, it is vital; when shattered in its structure, dead; nor can the impression of steam convert the latter condition into the former.

Again; man is born with a capability to feel and think. This is sensitive and intellectual life. But actual sensation and thought are the product of stimuli acting on the brain, through the nerves. Unless the stimuli be applied, therefore, the individual neither feels nor forms ideas. But the stimuli do not *produce* cerebral life. That life is not "the consequence of their operation." They only produce in it the action required for sensation and intellection. Had it not an existence anterior to their application, they could not do this. In a dead brain, however well it may be organized, no sensitive or intellectual action can be excited by stimuli.

It becomes obvious, on a deliberate and philosphical view of the subject, that life is capable of existing in two states, a latent or passive, and an active or open one; and each state constitutes alike a *vital condition.* Life is as positively present in the one as in the other, but under a different mani-

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festation. And the error of Brown and his followers has arisen from their neglect to make this distinction. They have mistaken the effect for the cause. To active or open life stimulation is necessary; to latent or passive life it is not. During the winter of cold climates vegetables are in the latter condition; and they exhibit then but very few vital phenomena; none indeed but evergreens can be said to exhibit any. During the summer they are in the former condition, and exhibit many such phenomena. Yet no one will deny that they are as *actually alive* in the one case as in the other. But they experience in the winter no stimulation calculated to maintain life in them. On the contrary, all the impressions they receive are fitted to destroy it. Life therefore continues in them, not only without stimulation, but in opposition to it. For the stimulation of cold on vegetables is hostile to vitality. If life be extinguished in them, no application of stimuli can rekindle it. This is proved in the case of annual plants. They die in the autumn or winter, and stimulant impressions cannot revive them. But, as relates to biennial and perennial plants, the case is different. Instead of dying, in the autumn or winter, they pass into a state of latent, to be roused into active life, by the warmth of the spring. It will be understood that, by active life in them, we mean their putting forth leaves and blossoms, producing fruit, secreting their peculiar juices, and increasing in size. Their vernal and summer changes are the result of vital action. But life itself lies deeper, and exists during winter without manifesting any action at all. If it did not thus exist, plants could not vegetate in the spring; vegetation being a vital process.

Similar remarks may be made respecting that portion of the animal kingdom (including especially cold blooded animals) which sinks into complete torpor, during the winter. Their life becomes latent, but is not extinguished. Yet no one will contend that stimuli preserve it, because they are withdrawn. When spring returns, and they are reapplied, active life is again developed, and the animals issue from

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their winter-quarters, to enjoy existence again, and propagate their race. Under this head many curious and interesting facts might be mentioned, clearly proving that life is not the result of stimulation.

In the State of Vermont, frogs were dug up, in the sinking of a well, about forty feet below the surface of the earth, where they must necessarily have lain for hundreds of years —probably for thousands. When first discovered, they were perfectly torpid. In other words, their life was latent. But it was not extinct; for, on exposure to warmth, light, and atmospherical air, they began to move, but died soon afterwards from excessive excitement. Here life had been maintained, during the long period of their torpor and inhumation, without the possibility of their experiencing the influence of stimuli.

During a course of interesting experiments on certain classes of inferior animals, the Abbe Spallanzani discovered, that *animalculæ infusoriæ* became torpid, when suffered to dry, and revived, when exposed again to the action of moisture. Having learnt this fact, he kept one of them in a state of torpor or latent life three years, and then excited active life in it by a drop of water. He kept another, by the same means, in a similar state, twenty-seven years, and restored it to active life, by the same agent. Instances of this description, well authenticated, are innumerable.

Certain facts respecting the latent life of vegetable seeds are perhaps still more remarkable and instructive. Early in the present century, several nuts, of an unknown character, were dug up, in Canada, at a great depth below the surface of the ground, where they must have lain many hundreds of years. On being suitably disposed of, subject to the stimulation of heat, light, moisture, and air, they vegetated, and produced plants dissimilar to those of the surrounding country, and entire strangers to every one who examined them. They were regarded as the product of antecedent ages, but now extinct. Seeds known to have been nearly a hundred and fifty years old, were planted, about thirty years

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ago, by a gardner in Vienna, and vegetated as promptly and vigorously, as if they had been the product of the preceding year. Seeds believed to have been about a thousand years old were made to vegetate in London. But the most memorable instances of the kind remain to be mentioned. The city of Herculaneum was buried, by an eruption of Mount Vesuvius, in the latter part of the first century of the Christian era. In this state of inhumation it continued about seventeen hundred years. In exploring its ruins, a foreign traveller found some ancient Roman beans, in a place where they had lain from the time of the catastrophe. He planted them, and they grew as readily as they had done during the reign of the Cæsars. From that source are derived the old Roman beans, which are now cultivated in several parts of Europe. Again; wheat is now growing in France, the seed of which was taken from an Egyptian mummy, where it had lain upwards of two thousand years—possibly more than three thousand.

Such are the facts; and their explanation is easy. In each case, life was preserved in a latent state by its own powers, without the slightest aid from stimuli. The influence of stimuli only converted it into active life. Vitality in the abstract then, has no dependence on stimulation. Hence "*life*" is not as our author asserts, "the consequence of the operation of stimuli." It is a mode of existence deep-laid in organized matter, self-sustained, and capable of preserving the bodies it inhabits from destruction by chemical affinity. Had life been destroyed in the beans found in Herculaneum—had they for example been *boiled*—instead of lasting seventeen hundred years, they would not have lasted one year; perhaps not the fourth part of it. Chemistry would have asserted its power over them, and resolved them, in a short time, into their primitive elements. Of the inhumed frogs, and the torpid *animalculæ infusoriæ* the same is true. Had it not been for their latent life, their decomposition would have been certain and speedy.

The true doctrine on this subject may be briefly recapitu-

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lated. Life exists in organized matter in a twofold state, *latent* and *active*. To the latter, which includes the vital play of the organs and the development of their functions, stimulation is necessary. To the former, where the organs are torpid and their functions suspended, it is not. Latent life can exist in a given form of organized matter much longer without the application of stimuli, than active life can with it. Indeed it is easy to conceive how latent life may become perpetual. Let a bean, a frog or an insect in a torpid state, or any other being possessing it, be placed in a situation beyond the reach of accident and the influence of stimuli, and it is not extravagant to say that it will be immortal. If it can endure, in one instance, seventeen hundred years, and in others perhaps several thousand, there is no ground to disbelieve that it may endure for ever. Why should it not? It controls chemical affinities, and prevents them from decomposing the body possessing it; and it is not exhausted by organic action. There is nothing to destroy it then but accidental violence, beyond the reach of which it is placed. It might be assumed as a physiological axiom then, that latent life, protected from stimulant impressions, and secured from casualties, is immortal.

Should the queston be proposed to us, "If life be not the result of the stimulation of organized matter, what is it? We would answer, we do not know, and shall not therefore, like too many system-builders, attempt to conjecture. But we do know that it is something perfectly distinct from chemical powers, and above their influence—that man is not, as a certain school of fashionable philosophers would make him, a mere chemical apparatus. We also know that it does not consist in the aggregate of the vital functions of a living being, whether animal or vegetable. The life of man does not consist in digestion, respiration, muscular action, nutrition, secretion, absorption, and all the other functions he performs. These are but effects or manifestations of life—different forms of vital action. Life is the fountain, they but the streams that flow from it. It can exist without them; but

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they cannot exist without it. A vital function is but a mere attribute. There must be something therefore to which it is appurtenant, and on which it depends. As well may the sounds of the Æolian harp be regarded as the fitness of that instrument to vibrate and produce sound, as vital action of any and every kind be asserted to constitute life. As well may the descent of a ponderous body be called the power of gravity, the pointing of the needle to the pole the magnetic power, or any other effect the cause that produces it. To include the whole in a single sentence; as well may the phenomena of the material universe be pronounced the GREAT CAUSE that gave them being. This doctrine of the Brunonians (and our author is one of them) is an inversion of nature—a substitution of things subsequent and secondary for things precedent and primary—an identification of cause and effect. A belief in it appears to arise from a superficial view of things; a want of that discrimination and judgment which are essential in philosophy. Life lies more deeply enshrined in organized matter, and is something of a higher and more substantial character, than the Brunonians imagine. It qualifies such matter to act according to its organization; but it does not consist in the action thus produced. An assertion the contrary of this seeks to confound or rather identify things as distinct from each other as the substance and the shadow.

Were life a mere aggregate of functions, it would be widely different in different orders of animals, in as much as the functions of some are much more numerous than those of others. But such is not the case. Life *is* the same from the highest to the lowest grade of organized existence—from man, who feels, perceives and reflects, to the semi-vegetating mucor and conferva. The ground of its being differently manifested in different orders of existence, is the difference of their organization. Alter organization, and you alter action. An interchange of the organizations of the elephant and the whale, the tiger and the shark, or of the oak and

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the cedar would produce an interchange of their vital functions.

Nor do we belive that life is the result of mere organization, though many contend that it is. To us it is inconceivable that particles of matter, dead when apart from each other, and possessed of a given form, should receive life by a mere change of form, or by any sort of union or arrangement that can be made of them. In confirmation of this view of the subject it may be stated, that life and organization do not necessarily co-exist in the same body. Death does not arise exclusively from disorganization. In the bodies of men and other animals that are drowned or killed by lightning or deleterious gases, no disorganization is discoverable. The same is true of persons destroyed by terror, or blows on the scrobiculus cordis. It might be easily shown, did time permit us to dwell on the subject, that there are much stronger reasons for considering life the cause of organization than the effect.

After enumerating a few of the phenomena and modes of action of organized bodies, such as, their commencing their existence "by generation," being "developed after a determinate type," having "the power to maintain themselves by the appropriation and assimilation of exterior matter to their own substance," and some others, Dr. Jackson says;

"The whole of these acts constitute life, and are the result of motions or actions of which *organized matter alone is susceptible.*"

If by this statement the Doctor means, that none but organized matter is susceptible of life, we cannot concur with him. The blood is possessed of life; and there is reason to believe that the same is true of the chyle, especially after it has passed the mesenteric glands. Are these fluids organized? Some contend that they are—our author we believe being one of them. But, to say the least of it, the position wants proof. An *organized fluid* is an expression scarcely susceptible of a definite meaning. It suggests a confused idea; or perhaps no idea at all—something amounting to a

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cloudy notion. To the constitution of organization (we mean the organization of living matter) solids and fluids are essential; and they must be united under some given arrangement. But we are not sure that the blood, circulating through the system, contains any genuine solid, or any specific arrangement of its parts. If the red globules are called solids, so, we apprehend, may the particles of other fluids; in which case all things, even atmospherical air, and the most attenuated gases, may be said to be made up of solids; and thus will many useful distinctions be abolished.

Still the question recurs, "What is life?" and we still reply, we do not know. We believe however (but express our belief only as an opinion) in the existence of a *vital principle.* We mean by this, some highly attenuated and active kind of matter, indispensable in the constitution of a living being—as much so, as oxygen is in the formation of an oxide, an acid in that of a neutral salt, or caloric in the production of fluidity. Unless the vital principle be united to organized matter, or in some way associated with it, such matter is *not alive.* Attach it to matter duly organized, and vitality is produced. Withdraw it again, and death is the issue. Thus, if water be deprived of caloric, it is *living* water no longer, but ice; and, by expelling oxygen from a metallic oxide, the oxide is destroyed, and the metal revived. These analogies are intended for illustration, not for proof. It would seem to be by the union of a vital principle to organized matter that a susceptibility to stimuli is produced; and the matter thus endued with life acts, when stimulated, according to its organization—seeds vegetate, muscles contract, glands secrete, the stomach digests, the lungs arterialize the blood, and the brain, spinal cord, and nerves perform their several functions. There would seem then to be but two modes of extinguishing life; by destroying organization or so deranging it as to render it unfit for action; and by removing the vital principle. Mechanical violence, with some other causes, may produce the first effect, and lightning, excessive stimulation, strong emotion, and perhaps unrespirable gases the second.—

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Such are our reasons for dissenting from the Brunonian doctrine of life, to which Dr. Jackson has avowed his adhesion. We have long entertained them, but never perhaps so fully promulgated them before—we mean through the press.

Another sentiment of our author, which we consider not only erroneous, but of evil tendency, is that which relates to medical experience. It is thus expressed by him.

"What is called experience in medicine, daily observation and reflection confirms me in the conviction, *is a fallacious guide*, not more entitled to the implicit confidence claimed for it, than when it was thus characterized by the great father* of the science—*fallax experientia.*" (Pref. p. x.)

This is a very extraordinary tenet; and the attempt made to sustain it is not less so. It is as follows.

"Individuals differ from each other in so many particulars; they vary in constitution, in temperament, in the development and power of their organs, in the forces of life and the energy of their functions, to such an extent; the human mechanism is of a structure so complicated, the elements of its constitution present so many and diversified combinations, it must always be the merest casualty, that two beings, even in health, much less in disease, should be found in circumstances precisely alike." (Ibid.)

That one person differs materially and in many respects from another is true. But in reference to *practical medicine*,

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*If the fruit of experience and observation, which cannot be separated, be taken from the works of the "great father of medicine," what will be left to render them worth reading? Certainly nothing. Of principle, as the term is now understood, they have none. Indeed, as the author of them was entirely uninformed in anatomy and physiology, they can have none. Experience, then—practice—trial, connected with faithful observation of the results, constituted the only source of his knowledge. In condemning experience, therefore, he condemned his own information and skill, which were its product. We do not remember to have ever seen real experience decried, until we looked into the volume we are examining. Every one however is not capable of acquiring such experience, because every one cannot observe and judge. True experience is the result only of accurate observation and good sense. But wherever it is thus produced, it is invaluable.

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the representation of that difference here given, is singularly exaggerated. It is rank caricature. To render it available in the treatment of diseases is impossible. We mean that no physician ever does or can ponder and combine all these considerations, or even the fourth part of them, when, in any given case, he is examining indications, and settling his plan of practice. Nor is it either necessary or expedient that he should. The effort would bewilder him, and unfit him for his duty. Provided he ascertain the seat of the complaint, the condition of the organ or organs, in which it is seated, the general character of the prevailing epidemic, if there be one, and the state of the circulation, and then make the requisite allowance for age, sex, occupation or mode of life, habit, and a few other points easily understood, he is prepared for the contest, and may engage in it with high hopes of victory. The practice of physic is not so complicated an art, as these views of our author would represent it. And it is extremely fortunate that it is not. If it were, success in it, if not hopeless, would be much more doubtful and precarious than it is. Cases of idiosyncrasy excepted (and fortunately they are rare), diseases assume nearly the same characters, and medicines act much in the same way, on all the members of the same community, the allowances already referred to being made. Hence the diseases of a given season or period, seldom call for any remarkable variety of treatment—the specified provisos still existing, and exceptions being made for cases of greater or less intensity.

But, be these points as they may, it cannot be questioned, much less denied, that, instead of being "a fallacious guide," *experience is the safest guide in practice*—it is the only safe guide. We do not mean *broad empiricism;* but *enlightened experience*, the result of observation, discrimination, and judgment, directing the application of sound principles. Nothing but experience can give such direction. To inculcate the contrary of this, is to exchange common sense for wild speculation.

Experientia docet has been a maxim, time out of mind.

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And no mathematical axiom is truer. Why then does it not apply to practical medicine, as well as to every other art? Because, says our author, there is an endless variety in the constitutions of different individuals, and an equal one in the characters, indications, and modes of treatment of their diseases. But does not this variety, supposing it to exist, oppose as many obstacles to the application of principles, as to that of experience? Must it not be detected, judged of, and met in the former case as well as in the latter? And will not the same sagacity and attention master it in either? Yes, certainly. Can principles be applied indiscriminately, without examination or judgment, any more than modes of practice resulting from experience? No one will contend for the affirmative of this. It is itself a principle, that the same principles must not be applied in the same way in every modification of disease. Strict and severe discrimination must be made. Besides; are not all practical rules the result of experience? If they spring from any other source, they are no better than conjecture. We speak familiarly of an experienced soldier, an experienced seaman, and an experienced artist; and our own experience teaches us to confide in the efficiency of each, much more than in that of the inexperienced. And shall we place no more confidence in an experienced physician, than in a tyro in practice? Let this matter be brought to a proper test.

Let two young men of equal talents and the same elementary education commence the study of medicine, at the age of eighteen, under the same preceptor. One of them, satisfied with a common American course of instruction, graduates at twenty-one, and engages in practice in the Mississippi valley. The other, graduating at the same time, repairs to Paris, *walks the hospitals*, sees the practice of those institutions, hears lectures, cuts up dead bodies, and learns *principles* from all the distinguished physicians of the place. In this instructive course he spends three years more, and then, returning to his native country, settles in practice in the same neighborhood with his former fellow-student. Which of the

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two will, at this period, practise with most success? The question is easily solved;—the latter undoubtedly. Why? Because he has been taught to practise by the *experience* of three years. During this time the other has been learning *principles*, which he can neither apply, nor judge of their soundness or value, until experience has enabled him to do so. We do not deny that the Parisian pupil may become ultimately the abler physician. But to render him so, experience must combine with a knowledge of principles. Dr. Jackson is himself master of both principles and experience. But he is experienced only in treating the diseases of a city and an infirmary. Let him migrate to the West, engage in professional business, and mark the issue. He will soon find that the physicians of this region, whose knowledge of principles is limited compared to his, will greatly surpass him at first, in the success of their practice. Why? Because experience has taught them to contend with western complaints. Nor can any thing else teach him how to equal them. Can a young man, who has made himself master of the science of navigation at college, repair to sea, and become immediately an expert and able navigator of a ship? No; he cannot. Why? Because he wants experience. Nor, for the same reason, can a mere knowledge of the principles of surveying and gunnery make an individual an adroit surveyor or gunner. So essential is experience to excellence in every art, practical medicine not excepted. When we mean to indicate the unfitness of any one for a given employment, what is more common, or more severely condemnatory, than to pronounce him inexperienced in it?

From genuine experience then, the word *fallax* must be withheld, and associated with *quackery*. In fact, such experience is the only test of truth and usefulness in the treatment of diseases. Every other is fallacious. Much better then to say *principia fallacia*, than "*experientia fallax*". The substantial constituents of an able practitioner are *principles* and *experience*. And they are alike indispensable. Deprive him of the former, and he becomes an empiric; of the latter,

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and he is a theorist. Recollecting then that our author is a public teacher, whose opinions are to have an influence on many of the younger part of the profession, we regard with equal surprise and regret his unfounded condemnation of experience in medicine. He might as well denounce practice (of which experience is the offspring) in painting, engraving, or any other branch of the Fine, or even of the Mechanical Arts—as well affix the expression "*fallax experientia*" to dexterity in the forming and setting of types. What is it but the experience of the preceding generation that gives to the succeeding one its superior advantages? And is not experience, we repeat, the parent of all sound practical principles? Unquestionably it is. None but the youthful and inexperienced in medicine rely on principles to the exclusion of experience. And a moderate share of true experience soon teaches them their error, and saves them from the exposure of themselves, and from doing injury to others. If we are not misinformed, experience has compelled Dr. Jackson himself to depart, in the treatment of disease, from some of the practical principles of Broussaisism, to which he had avowed fealty. We are told, for example, that he is much less confident than he once was, in the efficacy of cold water, ice, mucilage, and other lenients, in the cure of fever.

Having finished our critical remarks on "The Principles of Medicine," we purpose to give an analysis of the work in our next number. We wish it to be understood however that we have noticed but a few of the multitude of our author's opinions which we deem unfounded; and examples of the exceptionable style we have attributed to him will be seen in almost every paragraph we shall hereafter extract.

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BIBLIOGRAPHICAL NOTICES.

All the material facts in the History of Epidemic Cholera; being a Report of the College of Physicians of Philadelphia, to the Board of Health; and a full account of the Causes, Post-mortem appearances, and Treatment of the Disease. By JOHN BELL, M. D. Lecturer on the Institutes of Medicine and Medical Jurisprudence, Fellow of the College of Physicians, one of the Vice-Presidents of the Medical Society of Philadelphia, Senior Physician to the Philadelphia Dispensary, &c. &c. and By D. FRANCIS CONDIE, M. D. Corresponding Secretary of the Philadelphia Medical Society, one of the out-door Physicians to the Philadelphia Almshouse, Member of the Cholera Board, Physician-in-Chief to the Cholera Hospital, Southwark, &c. &c. Second Edition, enlarged and improved. Philadelphia: Published by Thomas Desilver, Junr. 8vo. pp. 188.

The value set on the first edition of this work is sufficiently indicated by the fact, that it was all sold in the *space of a month*—a shorter period, we believe, than that found necessary to the vending of a full edition of any other medical production of our country. And the second edition is, as expressed in the title page, "enlarged and improved." The improvements moreover are derived from the best sources—observation and experience. In their account of the treatment of cholera, the authors give the result, not of their own practice only, but of that of the *general Faculty* of Philadelphia. Without entering into any analysis of the publication, we have no hesitation in pronouncing it—all things considered—the most valuable work on the late Epidemic we have read. In a particular manner, it comprises more

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important matter, in a narrow compass, than any other. Yet its condensation does not mar its perspicuity. It is well written, its style being as clear, as its matter is interesting. We take pleasure therefore in recommending it to public attention. We shall only add, that it may be read with advantage by the *un*medical, as well as by the medical portion of the community.

Principles of Physiological Medicine, in the form of Propositions; embracing Physiology, Pathology, and Therapeutics, with Commentaries on those relating to Pathology. By F. J. V. Broussais, M. D. Knight of the Order of the Legion of Honour, Physician-in-Chief, and First Professor in the Military Hospital of Instruction of Paris, Member of the Royal Academy of Medicine, of the Royal Medical Society of Madrid, of the Patriotic Society of Cordova, Corresponding member of the Society of Emulation of Liege, of the Medical Societies of Philadelphia, New Orleans, Louvaine, &c. &c. *Translated from the French.* By Isaac Hays, M. D. and R. Eglesfield Griffith, M. D. Members of the American Philosophical Society, of the Academy of Natural Sciences, Honorary Members of the Philadelphia Medical Society, &c. &c. Philadelphia: Carey & Lea. 1832. 8vo. pp. 594.

We do not altogether admire the aphorismal form, in which this book is written. We apprehend the science of medicine is not yet sufficiently developed—not yet brought to a state of sufficient exactness, to admit of such a form. It is yet wanting in precision for such a mode of writing. Besides; there is in the mode something a little too dogmatical, and therefore apt to be too authoritative with those, who do not thoroughly examine and judge for themselves. A *mere opinion* asserted *positively* by a powerful and distinguished

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man, is too frequently received by persons of less power and discrimination, as a *settled truth*. Hence is opened, in many cases, a wide channel for the diffusion of error. The aphorisms of Boerhaave were formerly committed to memory by students of medicine, and in that way did much mischief.

These however are faults only in *manner;* and, in the production before us, they are somewhat atoned for, by the 'Commentaries' offered by the author on his own "Propositions." The *matter* of the work is, for the most part, *substantial* and *valuable*. We do not concur in *all* the views and doctrines it contains; but we concur in a sufficient number of them, to induce us to consider it an important addition to medical science. The translators have therefore done credit to themselves and much good to their profession, in the United States, by giving it an English dress. As far as we have had leisure to look into the original, for the purpose of comparison, the translation appears to us to be correct. The style moreover is that of *science*, and therefore such as the matter requires. The work deserves, and we trust will receive, the patronage of the profession.

Human Physiology; illustrated by numerous engravings. By Robley Dunglison, M. D. Professor of Physiology, Pathology, &c. in the University of Virginia, Member of the American Philosophical Society, &c. "*Vastissimi studii primas quasi lineas circumscripsi.*—Haller. Two volumes, 8vo. Philadelphia: Carey & Lea. pp. 1058.

This is a work of no common standing. It is characterized by much learning and research, contains a vast amount of important matter, and is written by a scholar and a man of taste. We are inclined to think that it will be placed, by general consent, at the head of the systems of Physiology now extant in the English language. Nor are we prepared to say, that, all things considered, its superior exists in any

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language. It is well calculated for the purposes of instruction, the arrangement being judicious, the style concise and clear, and the illustrations apt and satisfactory. Though it is not so full as some other systems of Physiology, it embraces all the most material topics, in that branch of medicine, and treats most of them at a sufficient extent. The plates add not a little to its convenience and value.

On the whole, though, in many points, we differ widely in opinion from the learned author, we deem his work a rich contribution to medical literature, and warmly recommend it to public attention. We think its prospect fair to become, for a time, a standard book. It has a character of its own, and is a true *Anglo-American production*, unsophisticated by gairish foreignisms.

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ANALECTA.

A number of interesting cases, illustrative of the application of Physiological medicine to the diseases of Louisiana, are reported by Dr. Barton in the Nov. No. of the American Journal of the Medical Sciences. The two following are given as specimens of the practice.

Case I.—*July*, 1829. D. aged forty, full habit of body, sanguine temperament, unaccustomed to the climate, was taken with a severe chill after being exposed to a rain on the 13th, which lasted upwards of twelve hours. Saw him in the forming stage of the fever, when he had soft, contracted pulse; violent vomiting, with discharge of much bile; great tenderness of abdomen; tongue red on edges, and furred in middle; hot, dry skin. Applied six cups to epigastrium, which at once suppressed the vomiting, relieved the cold chills still existing, and produced perspiration. Ordered mucilaginous drinks, and fomentations of the same to the abdomen. Saw him again in four hours. He had no vomiting since cupped, though it had previously been incessant; fever much less; fine perspiration followed the cups; pulse full and developed. He had however pain in the head, and I therefore bled him twelve ounces, with relief. Ordered Seidlitz powder, and continue mucilaginous drinks and fomentations; fever soon subsided.

14*th*. Much better; no return of fever; continue treatment.

15*th*. Feels very well; discharged.

Remarks.—This is an ordinary case of bilious fever, severe in its incipient stage, and portending a violent attack, but cut short at once by the local depletion, applied as near as possible to the irritated organs; which arrested the disease in its first seat, and cut short the sympathising consequences. The gall-bladder in this case had either, from the violent efforts of vomiting, thrown out its contents, or the liver itself had associated its action with the irritated stomach, and increased functional action had been the consequence. In either event, the local depletion had arrested it, either in the first seat, or the second. Though the ordinary course by an emetic, cathartic or calomel might have relieved in this case, by acting upon the secretions; yet the course of relief by revulsive secretion, still leaves the stomach, the receiving organ of the remedy, as well as the seat of the disease, in a state of irritation: and hence much more liable to repetitions of the paroxysm, which, in this case, was prevented by the total removal of the primary diseased impression, and the case cut short. The local capillary bleeding has all the advantage of the revulsion and depletion

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and leaving still the important organ, the stomach, unembarrassed, and perfectly free to exercise all its reactive powers. Similar cases could be multiplied, were it necessary.

Case II.—*June* 1829. B. aged forty-eight, of a full sanguineous habit, dark complexion, had been taken with quotidian fever on the 16th, and had taken a cathartic of Lee's pills. I was called on the 18th, and found the patient in a chill, with pain in epigastrium, and in head, back, and limbs; glassy eyes; applied six cups to epigastrium—relieved chill almost immediately in the cold extremities. Fever afterwards lighter than usual. Advised mucilaginous drinks.

19*th*. Much better; ordered oil; chill much lighter: three cups to epigastrium soon relieved it; fever light.

20*th*. Fever very light. Drinks continued.

21*st*. Discharged.

Remarks.—This is also a very ordinary case, recorded to show the influence of local detractions of blood in the forming stage of fever—the chill.

Case in which a very large dose of Arsenic was taken by mistake, without fatal consequences. By H. Perrine, M. D.—The following is a brief sketch from memory of an accident which occurred to myself in Bond County in the state of Illinois. While convalescing from dysentery, on the dawn of the 20th of September, 1821, I mixed some powdered Peruvian bark in a glass where sixty-four grains of arsenic had been accidentally left by my oldest student, and drank all that it contained except what remained adhering to its internal surface, and then rode six or seven miles to visit a patient. On the route I experienced sickness and uneasiness in the stomach, which increased on my arrival, after unavailing efforts to sleep, so greatly as to induce me to promote vomiting by irritating my throat with my finger, but am not conscious of having discharged either bark or arsenic. I then had some partial slumber, which was interrupted by frightful dreams, accompanied with increasing uneasiness of the stomach, severe pain in the head, and violent agitation of the heart, and arteries, and general tremor of the muscles. Four hours had thus passed, when my frightened student arrived, (now Dr. E. Pickett, of Huntsville, Alabama,) with the intelligence that from the traces in the glass I must have taken between fifty and sixty grains of arsenic. Terrible as was this news, it excited a degree of mental power that apparently regulated and strengthened the hitherto enequal action of the vascular system. I then felt, or thought I discovered preternatural heat in the stomach, and as my pulse had certainly become preternaturally strong, I had forty ounces of blood immediately taken from my arm, and within eight hours afterwards, twenty-four ounces more. My stomach was very repeatedly filled with warm milk and mucilaginous drinks, and as often immediately evacuated with the assistance of sulphate of copper. The bulky cathartic medicines, salts, senna, &c. in large quantities were then introduced, but the stomach had become so irritable as to reject them immediately. After going the rounds of more active substitutes, jalap, rhubarb, &c. I commenced with pills of calomel, ten grains each, every two hours, which amounted to two hundred and ten grains in forty hours, whose operation was assisted by numer-

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ous glysters. Blisters, rubefacients, and the warm bath were auxiliary remedies. My pulse continued increasing in frequency during the next days, Friday and Saturday, until near midnight, when it apparently ceased. The coldness of my extremities by this time had almost reached the trunk. During several hours I was gasping for breath, and suffering all that mortal inquietude which generally denotes the near approach of death. I felt a sense of suffocation and weight on my breast, and could barely whisper my desire to be placed in a bath of very hot water. I fell asleep in the bath, was removed to my bed with heating applications to my extremities, and looking as I then thought for the last time at the light of the candle, I again sunk into profound repose. I waked on the dawn of the sabbath, at first doubtful of a change of existence, and next apprehensive of the occurrence of gangrene. I slowly passed my fingers to my wrist, and discovered perspiration, warmth and pulsation! I raised my hand to my mouth, where it encountered a free secretion of saliva! A discharge from my bowels which immediately followed was properly tested, and gave no indications of arsenic!

The above case may probably tend to settle one of the disputes among the experimenters on poisons—as it shows that arsenic does not operate exclusively on either the nervous or the vascular system. It need scarcely be added, that my will was dictated and signed while the arsenic was in my body.—*Ibid.*

On the Cure of Amenorrhœa by Leeches applied to the Mammæ. By Charles Loudon, M. D. of Leamington Spa.—There are but few of the sympathies which exist between the remote parts of the body which so decidedly manifest themselves as that between the *uterus* and *mammæ*. It would, therefore, be useless to point out how many physiological and pathological facts demonstrate this in practice. The father of medicine was not ignorant of this great sympathy, and availed himself of it therapeutically; for in floodings he recommends dry cupping to be practised on the breasts, with the view, no doubt, of causing a revulsion, and exciting a new action in the womb.

Reflecting on this principle, it occurred to us, that if an action could be induced in the capillary vessels of the *mammæ*, the womb might in other diseases be made to sympathize with these parts. Leeches seemed to be the most likely means of producing this action, and in a case of *amenorrhœa* of two years standing, two leeches were applied to the lower part of each breast for a month, repeating them on alternate days. In three weeks the *mammæ* swelled to an enormous size, giving a sensation to the patient as if they would burst. About the end of the month menstruation came on, and the young lady is now the mother of two children. Several other cases in which the leeches have been tried, have been followed with the same results, and no medicine has been used excepting an aperient to keep the bowels open.—*Edinburgh Medical and Surgical Journal, July*, 1832.

Case of Premature Puberty.—By J. Le Beau, M. D. of New Orleans. (Communicated in a letter to Dr. Dewees.) I take the liberty to acquaint you with an extraordinary case of prematurity in a child, which fell under my observa-

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tion in this city. Matilda H. was born of a white family in low circumstances, the 31st of September, 1827. She came into this world with her mammæ perfectly formed, and the *mons veneris* covered with hair, as much as a girl between thirteen and fourteen years old: when precisely three years of age the *menses* made their appearance, and have continued to reappear regularly every month until the present time, and as copious as any woman might have them—each period lasting four days. She is now four years and five months old: she measures forty-two inches and a half in height, French measure; her features are regular; she has a rosy complexion; her hair chesnut colour; her eyes bluish-gray; she is what may be called handsome; the conformation of her body is very strong; her *mammæ* are now of the size of a full-grown orange, and the dimensions of the *pelvis* are, in my opinion, such to enable her to bear children when eight years old, and very likely sooner. She constantly enjoys good health.—*American Journal of the Medical Sciences.*

The Treatment of Gout. By Sir Henry Halford.—With regard to the remedies for gout, my dependence is placed on the colchicum. Under the common circumstances of an attack of gout in the extremities, I do not use it immediately, but wait a day or two, until the malady shall have fixed itself. I then direct the wine of the root, prepared according to the directions of the Pharmacopœia; and I do not hesitate to declare, that I have not known a single instance of any untoward effect from it. It often cures the disease without any manifest increase of any of the excretions. Sometimes it produces perspiration, and sometimes it acts as a diuretic—the two objects aimed at generally by a physician in the use of our common resources in the treatment of this disease.

Chloruret of Lime and of Soda in the Treatment of Venereal and other Ulcers.—Dr. Mene, of Vaugirard, speaks very favorably of these remedies in the treatment of venereal ulcers of the prepuce, amygdalæ, palate, &c. In one patient, in whom the greater part of the glans had been destroyed by chancres, a cure was effected in eight days by repeated lotions with the chloride of lime. Dr. M. has derived equal advantage from these lotions in atonic ulcers, which resisted all other remedies employed to produce cicatrisation. They were healed by washing them with the chloruret, and afterwards covering them with compresses steeped in that liquid.—*Gaz. Méd.*

Hydrocele.—A young man with a hydrocele applied to me for assistance. I punctured the tumor, and evacuated the water. Nothing else was done. I advised a radical cure; and among other means for accomplishing so desirable an object, I described to him the method of using the seton. To these observations he made no reply. In the usual time the sac was filled again with water as before, and the lad let it out with his pen-knife; this he did two or three times in succession in the course of a few months, when he had recourse to the seton, and used it in the following way. He armed a large sail needle with cotton thread, and introduced the point of the needle into the opening which he

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had made with the pen-knife, in the lower part of the scrotum, to evacuate the water, and then crowded up the needle as far as he could conveniently, pushing it out through the skin at the upper part of the scrotum, and pulled through these wounds the cotton thread. He let the seton remain in the scrotum two or three days, when he thought it had been there long enough to accomplish his object, and then took it away and washed the parts with brandy. By these means a *radical cure* was accomplished. This was all done by the lad, privately, and his conduct kept a secret seven years, when he cautiously related it to me, not two days ago, as I enquired after his hydrocele, and said the side on which he operated was then as well as the other.

This man was altogether ignorant of anatomy, and of every principle of surgery.—*Boston Med. and Surg. Journal.*

Effects of Darkness in producing Deformities.—A correspondent writes us the following curious fact. There is at present in Paris an artist of the Louvre, an eminent historical painter, of the name of Ducornet, who paints with his feet. He was born without arms, of poor parents, at Lille. There are also about the French metropolis a number of beggars, twelve or thirteen of them at least, all deformed in various ways, and all born at Lille, in certain dark caverns under the fortifications. The effect of these places, from their want of light producing malformed births, is so notorious, that the magistrates of Lille have issued strict orders to prohibit the poor from taking up their abode in them. It is added by our correspondent, that he had a conversation with Mr. Edwards on the subject, and that gentleman was greatly struck with the confirmation which the above circumstances afford to his views, stated in his work, *Sur l'influence des agens physiques sur la vie.* Mr. Edwards's experiments of detaining tadpoles in darkness, and thus causing them to grow into gigantic and monstrous *tadpoles*, instead of being transformed into frogs, are well known.—*London Medical Gazette.*

Insommolence cured by Sulphate of Quina.—M. Barbier, of the Hotel Dieu, Amiens, relates the following case:—A man, aged 42, had cholera, from which he recovered; all the functions were restored, except that his sleep was destroyed; scarcely had he an hour's rest altogether in the course of each night; laudanum and other soporifics were exhibited without effect. M. Barbier found, on examination, that every evening he had a nervous 'agitation,' which lasted all night, accompanied by some pain in the head and limbs. Looking to the periodicity of the affection, M. Barbier ordered six grains of sulphate of quina every night. It was given two nights; he slept well: it was then omitted; he had no rest. The medicine was again renewed, and continued, with the effect of permanently procuring six or seven hours of sound sleep.—*Gaz. Med.*

On the Use of the Nitrate of Silver, as an Application in Burns and Scalds. By J. C. Cox, Surgeon. F. L. S. &c.—I took occasion, some time since, to call the attention of the profession to the use of the nitrate of silver in certain cutaneous affections, especially herpes zoster, for which I expressed the opinion

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that it was almost a specific; and the employment of that remedy in many severe cases subsequently, has fully confirmed that opinion.

I now desire to recommend the use of the same remedy in burns and scalds, as one more fitted than any other with which I am acquainted, to relieve the present suffering and obviate the future mischief. Where the burn is deep, and has destroyed the vitality of the cutis, of course no superficial application can do more than hasten the separation of the slough, and the spirits of turpentine is still probably the best application; but where there is extensive superficial lesion, either producing intense redness and pain, or vesication, the nitrate of silver is certainly unrivalled. I have employed it both in very strong solutions, and also in the solid form: but, on the whole, I think the latter by far the best mode of application. The parts being moistened with cold water, the stick of caustic is passed over the whole surface, which may be afterwards covered with cotton wadding and bandaged, where that can be conveniently done. The application does not increase the suffering—all uneasiness quickly subsides, and, in a day or two, the only traces of injury will be the desquamation of the blackened cuticle. Where the process of vesication has commenced, it is immediately arrested; but if the vesications have been extensive, and the cuticle torn off, or adherent to the dress, there is no application which forms so effectual and complete a protection from the external atmosphere as the lunar caustic. In the latter case, it should be rolled tightly and rapidly over the surface. It appears to combine chemically with the albumen, and to form a covering most beneficial and efficient. Where extensive sloughs have formed, and there is a large granulating surface, the nitrate of silver, in the form of strong solution, applied with a camel's-hair brush, diminishes the irritability of the surface, prevents, to a great degree, the distressing itching, and hastens cicatrization. I would here state that much mischief is frequently done by the use of astringents—as the oxide of zinc, &c.—which cause the cicatrix to contract quickly, and thus to form seams and bridles, which produce frequently great deformity. A young lady, a patient of mine, in dressing for a party, set fire to her pelerine, and severely burned the neck, back, and shoulder. On the shoulder a large patch was completely disorganized; to this I applied the spirits of turpentine. The other parts were either vesicated or severely scorched, extending over the back and neck; to these I applied the lunar caustic all over the surface, and wrapped the whole up in cotton wadding. In half an hour she became quite easy, went to sleep, and omitted to take the anodyne which was prepared for her. The shoulder was the only part which required any protracted attention.

Master C———, while casting bullets, scalded his hand with the melted lead. He was in great pain, which was only temporarily relieved by cold. I applied the lunar caustic to the surface; the pain was immediately relieved, and the next day there was no soreness or inconvenience.

A boy's face was severely burnt by the explosion of gunpowder. The application of nitrate of silver completely obviated the ill effects which would otherwise probably have arisen from the accident. The face certainly appeared grotesquely tattooed for a few days, by the application, but all traces were quickly removed.

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The above are sufficient exemplifications of a mode of treatment, which will, I am convinced, on trial, be found very beneficial.—*London Medical Gazette.*

Case of Cholera Infantum cured by Lunar Caustic. By Joseph C. Skinner, M. D. (Communicated in a letter to Dr. Darrach.)—My daughter Cornelia, aged seventeen months, was attacked about the middle of June, 1829, with the usual symptoms of cholera infantum, the most prominent of which were the following; occasional vomiting, particularly when any fluid was taken into the stomach; the matter ejected was sometimes tinctured with bile, but more commonly it was merely the fluid taken in the stomach; the bowels were exceedingly irritable, the evacuations copious, frequent, and very offensive; sometimes of a clay colour, at other times resembling coagulated milk; fever of a remittent form; skin hot and dry, &c. These symptoms commenced gradually and increased in severity daily until they became alarming. On examination of the mouth, I found the gums tumefied, and four molares making their way through, which was believed to be the exciting cause of the train of symptoms which I have described.

In the treatment of the case my first object was to remove all sources of irritation; accordingly the gums were freely scarified, and the bowels well purged with calomel and calcined magnesia and injections of common salt and warm water. This practice was steadily adhered to for several days, but failing to produce the desired effect, and symptoms of prostration fast approaching, the pulse indicating a great degree of debility, and the fever assuming a more decided remittent type, indicating the influence of miasmata, I deemed it necessary to resort to tonics and stimulants; accordingly I gave the patient half a grain of sulphate of quinine, with three grains of prepared chalk every two hours, and the sixth of a grain of opium every twelve hours, occasionally using an injection of melted fresh butter when the bowels were painful, a practice which had been remarkably successful in my hands in similar cases. In a few days I had the pleasure to witness the happy results; the patient seemed nearly convalescent, but owing to the extreme hot weather and some little error in diet, the disease returned and very shortly assumed a chronic form. The same treatment was pursued with the addition of brandy and port wine, but with little or no effect. The disease gradually advanced, the patient became more and more emaciated, and all the symptoms more aggravated, until about the 10th of September, when her situation became exceedingly alarming. The bowels were exceedingly irritable, the skin hot and dry, the tongue thickly incrusted with a whitish fur, the thirst insatiable, eyes thrown back, and apparently insensible, a profound stupor supervened and the mouth kept steadily open. On examining the evacuations from the bowels I discovered small portions of what I believed to be the internal coat of the intestines. In this state of things my hopes all vanished, and was about to give up my little daughter in the hands of its Creator, but recollecting the utility of lunar caustic, (nitrate of silver,) in severe cases of aphthæ, I determined to give it a trial in this case; accordingly I dissolved one grain in a tea-spoonful of the mucilage of gum arabic, and gave her one every four hours; after she had taken three portions I perceived the

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most happy effects about to take place, which inspired me with confidence in the remedy and a consequent determination to persevere, gradually increasing the dose and giving it at shorter intervals. The symptoms now began to abate, sensibility began to be restored, and every circumstance of the case seemed to promise a speedy convalescence. On the third day from the commencement of the caustic I discontinued it, and from that time the patient rapidly recovered upon a plentiful diet of poultry and sweet potatoes, and now she is a healthy and thrifty child.—*American Journal of the Medical Sciences.*

Madame de Barry's Bequest of her Body.—About the month of April last, Dr. Macartney, Professor of Anatomy and Surgery in the University of Dublin, received a communication from Madame de Barry, the substance of which was, that she wished to bequeath her body to him for anatomical examination. The worthy Professor, ever ready to act as high priest on occasions like the present, waited on the lady, and, as we understand, drew up a testamental instrument in such a form, that the body must be delivered to the Professor of Anatomy, or the property of the deceased would pass from the hands of her surviving relatives. On the death of Madame de Barry, this codicil was found fully to answer the purpose intended; for although five or six different wills were discovered, the eccentric, but high-minded woman, had carefully appended the clause of appropriation to each of them, directing therein that her body should de carried to the anatomical theatre by four poor men, to whom she bequeathed ten shillings each; that it should be dissected by the Professor of Anatomy, and that her skeleton should be prepared and preserved in the Anatomical Museum.

We understand that her skeleton is now being prepared, and that Dr. Macartney proposes to place her heart in an urn beside that of Dr. O'Connor, who has disposed of his body in a similar manner.

This, we believe, is the first example of a woman having bequeathed her body for anatomical examination.—*Lancet.*

Whooping Cough.—Dr. Blaud recommends the sulphuret of potash as a remedy for hooping cough. He gives it in doses of ten grains, morning and evening, mixed with a little honey. In six cases of adults in which he administered that remedy, the spasmodic cough, he says, ceased after the second dose, and the catarrhal cough disappeared after a few days.—*Revue Medicale.*

To protect Iron and Steel from rust.—Heat the object until it burns the hand; after which, rub it with very white wax. Heat it a second time in order to melt off the wax, and then rub it briskly with a piece of cloth or leather to impart to it brilliancy. This operation renders the metal proof against rust from exposure to the atmosphere.—*Recueil In.*

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